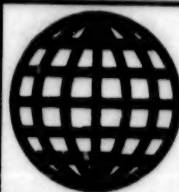


JPRS-TEN-90-010
28 AUGUST 1990



**FOREIGN
BROADCAST
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JPRS Report

Environmental Issues

Environmental Issues

JPRS-TEN-90-010

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London Conference Discusses Ozone Layer Problem

90WN0223A Brussels LE SOIR in French
27 Jun 90 p 18

[Article by M. M.: "To Plug the Holes in the Sky, Not Forgetting the One in the Third World's Finance"]

[Text] They were 56 in Montreal in 1987. As of yesterday, and until Friday, 100 countries have been in London studying the problem of the ozone layer, which has shrunk by four percent (six percent according to NASA) since 1970. It is an alarming depletion: Each one percent reduction in the planet's shield against ultraviolet rays causes a three percent increase in the number of skin cancers.

Three years ago, the countries signatories to the Montreal Protocol had agreed to reduce by half, between now and the end of the century, their consumption of CFC, the chlorofluorocarbons used to propel gases in aerosols, to circulate cold in refrigerators, and as basic product in the manufacturing of insulating foam.

In London, the ministers of environment must come to a decision about the proposal of the UN Environmental Program (UNEP), the conference organizer, to prohibit the use of CFC's by the end of the year 2000. Dr. Mostafa Tolba, the UNEP executive director, will also request that the use of "halon" gas, used in particular in extinguishers, be prohibited. Carbon tetrachloride (a solvent used to clean metals) and methyl chloroformate, two products which the Montreal Protocol had not mentioned, should also see their production restricted.

Last week, Toepfer, the German minister of environment, announced at the same time as the preliminary London conference work was getting underway, that his country would not wait for the end of the century to ban CFC's, halon and carbon tetrachloride. "It is a world first," he declared when introducing the decision of his government to forbid the production of these three products as of 1995.

This decision is the result of an agreement between the German Government and the powerful Hoechst and Kali-Chemie chemical groups both of which signed a written agreement expressing their decision to stop all production within five years.

Belgium is in favor of the German decision. For lack of being able to support it "reasonably" at the London conference, it will, like the FRG, align itself behind the middle-of-the-road position of the European Commission: the prohibition of CFC's on the 1997 horizon.

In addition to the actualization of the Montreal Protocol, the ministers of environment of the 100 countries represented should agree on the creation of an "international ozone fund" to aid Third World countries in their effort to replace CFC's by less toxic, but more expensive, products. The UNEP fears that western producers will set up a new market for CFC's in Third World countries.

It believes that, in order to respect the Montreal agreement, developing countries will need over 3 billion FB's [Belgian francs] annually. Yesterday in London, the experts' committee was still groping with each donor country's contribution to the financing of the fund. Another subject on which the experts stumbled was the prohibition of first generation substitution products, the HCFC's. The study of this proposal was postponed until 1993, following the American giant Dupont de Nemours' announcement that it intended blocking its 80-billion-FB research program if the HCFC's were to be prohibited.

On the eve of the opening of the London ministerial conference, the ecologist movement Greenpeace made an "appeal to reason" asking that a decree be urgently issued banning the use of CFC's and halons. Greenpeace pointed out that "the size of the hole in the ozone layer above Antarctica covered a 14-million-square-kilometer area in 1989, or an area 465 times larger than Belgium's surface. In no way does the new protocol take into account new scientific data indicating that only a total and immediate elimination of ozone-destroying products is necessary for protecting the ozone layer. On the contrary, the revision of the London Protocol will authorize an additional production of 8 million tons of CFC's between now and the year 2000, or 50 percent of the combined use as of this day!"

Greenpeace also quoted a recent report of the U.S. Environment Agency, according to which a 10-year delay in the total elimination of CFC's would stabilize the amount of chlorine in the upper atmosphere at an intolerable level for at least 50 additional years.

CSFR's Calfa on Venice Meeting, Austrian Energy Proposal

AU0708094990 Prague MLADA FRONTA in Czech
2 Aug 90 p 1

[Interview with Marian Calfa, CSFR premier, by Vladimir Schodelbauer; at Ruzyně Airport in Prague on 1 August: "Calfa: Interest!"]

[Text] Premier Marian Calfa granted us an interview yesterday evening following his arrival home from the Pentagonal Group meeting in Venice.

[Schodelbauer] What was the reaction by the individual countries to Franz Vranitzky's proposal for the establishment of a zone in Central Europe free of nuclear power plants? Did Mr. Vranitzky offer Czechoslovakia specific help should the V-1 blocks at the Jaslovské Bohunice Nuclear Power Plant be shut down?

[Calfa] Austria's stance in the sphere of nuclear energy policy differs considerably from that of the other four countries, all of which operate nuclear power plants. Our opinion and, obviously, the opinion expressed by our other partners is that this is a technical problem. In Austria this issue has very strong moral, social, and—obviously—political overtones. Mr. Vranitzky finally

formulated his proposal in such a way that an immediate moratorium is not the issue here; the issue involves the prospective trends in energy policy development. The other participants' reaction was somewhat reserved and, in essence, this issue was not analyzed further. As far as the Jaslovske Bohunice Nuclear Power Plant is concerned, Mr. Vranitzky offered energy supplies for the period the reactor is not in use during the independent commission's inquiry. However, our reactor's output is not so great that it could not be substituted by our other power plants. A decision on the possible closure of the reactor is in the hands of the independent experts and the government will respect their decision.

[Schodelbauer] What do you consider to be the most important result of your talks?

[Calfa] If I had to give a brief answer, I would say, first, it is the great feeling of belonging to this region and, second, the evident interest and effort shown in achieving mutually advantageous results in cooperation.

CSFR's Calfa on Need To Expand Nuclear Program, Austrian Objections

AU0908162790 Vienna KURIER in German
9 Aug 90 p 5

[Interview with CSFR Premier Marian Calfa by Jana Patsch; place and date not given: "We Continue To Push Ahead Nuclear Power"]

[Text] [Patsch] What will happen if the experts' opinion about the Bohunice Nuclear Plant is negative?

[Calfa] If the majority of the experts decide against Bohunice, we will close it down. Or do the Austrians really believe that the CSFR Government is so irresponsible as to endanger its own population? The patronizing behavior across the border seems to me to be a misjudgment of the qualities of the CSFR leadership. I repeat: If I get a signal that Bohunice is dangerous, we will close it down in our own interest.

[Patsch] So far you have not received such signals?

[Calfa] No! Our nuclear experts have repeatedly assured me that the two units are safer than in 1977, when they were put into operation. For 13 years we have steadily added equipment. Now I tell you something else: How would the Austrians react if a CSFR minister suddenly turned up at an enterprise with journalists and television cameras and claimed that this company is a danger to the CSFR?

[Patsch] Had Environment Minister Marilies Flemming not been invited?

[Calfa] As far as I know she invited herself. However, I discussed everything with Chancellor Vranitzky in a sensible manner and he understands our problems.

[Patsch] Has the chancellor offered you help?

[Calfa] Mr. Vranitzky has offered us the delivery of electricity for any potential shortfalls during the examination of the reactor....

[Patsch] Deliveries for free?

[Calfa] Allegedly yes. However—just on the side—it is technically impossible to transport the electricity that Austria has offered to the CSFR because of different voltage and nonexistent lines. I am not sure whether the Austrian engineers did not perhaps know this before the offer was made.

[Patsch] Have you not also been offered energy-saving technology?

[Calfa] This would be very welcome. We had hardly expressed interest and asked how this technology could be financed, when we received the answer: loans at conditions in accordance with bank practices. Those we get anywhere in the world, this is not a special contribution by Austria.

[Patsch] Thus, the energy-saving measures are again moving into the distance?

[Calfa] At the moment, 65 percent of our energy come from brown coal. What this means for the environment can be seen by everyone in northern Bohemia. I am seriously thinking of inviting all critics of our energy policy to stay in such a region. Therefore we continue to push ahead in nuclear energy—to be able to close down the thermal power plants. As sorry as I am, in the future we will not be able to afford any electricity exports anymore. This will also affect Austria.

[Patsch] The reduction of oil deliveries from the USSR has put an additional strain on your existing problems with energy....

[Calfa] Quite right. Even though we can activate the Adriatic pipeline, we do not have any foreign currency to buy crude oil on the world market. We can pay only with machines or industrial products. We made down-payments in this way in Iraq; now we have the boycott that was decided by the UN Security Council. We want to, and we will, join this boycott, but it hurts us very much in economic terms.

Austrian Minister Expresses Fear Over SFRY Nuclear Plant

LD0108174490 Belgrade TANJUG in English
1612 GMT 1 Aug 90

[Text] Krsko, August 1 (TANJUG)—The Yugoslav power plant Krsko is continuing to cause major fear in the Austrian public, frightened by the effects of the Chernobyl disaster, Marillies Flemmings, Austrian minister of the environment, told a press conference in the small Yugoslav town Krsko on the border between the Republic of Slovenia and Croatia.

The Austrian minister reiterated a stand of Austria's public and political top, requesting the earliest possible closing down of Krsko, Yugoslavia's only nuclear power plant. She also asked that access be provided to all information on the plant's operation.

Slovenian Deputy Prime Minister Leo Seserko agreed this stand [as received] and added that there were no reasons for keeping secret the information about the plant's work.

The 664-management plant [as received] was built in 1981.

The Slovenian Government made public a plan envisaging Krsko's closing by 1995. The Slovenians should give their opinions on this matter at a referendum by the end of the year.

However, the plant's other owner, the Croatian Government, recently rejected the idea on closing down the plant as it cannot provide an alternative source of energy for 17 percent of this republic's production of electricity, which have so far been produced by Krsko. The Croatian Government maintains that the plant is operating safely.

Austrian Reaction to Hungarian Plan To Halt Nuclear Plant Construction

AU0208192290 Vienna KURIER in German
2 Aug 90 p 2

[Report by N. Glattauer and K. M. Mayer: "Hungary Stops Expansion of Nuclear Power Plants!"]

[Excerpt] Sensational change of neighboring Hungary's nuclear policy! As new Environment Minister Sandor Keresztes told KURIER on Tuesday [31 July], Hungary has decided to stop the expansion of nuclear power plants for the time being. Existing plans for two new reactors—which were planned to be operated by France—will be put on ice until 1996. Thus, only the nuclear power plant in Paks, in the south of the country, remains in operation in Hungary. Its four reactors of the WWER 440, V213 type are a slightly improved version of the Bohunice type V 230.

Minister Keresztes, who is paying a brief visit to Vienna, told KURIER: "Hungary understands Austria's concern about the Bohunice Nuclear Plant in particular and about the use of nuclear energy in general. We, too, are afraid, because we know that nuclear power is unsafe and that its dangers cannot be predicted." Therefore, the government in Budapest has decided to work out alternative energies; help from Austria is indispensable for this. In particular the consistent exchange of research results is necessary.

Austrian Environment Minister Flemming, who visited the disputed Slovene nuclear power plant in Krsko on Wednesday [1 August], commented on Hungary's attitude before her departure: "This is a great, pleasant surprise for me." She will now urge the establishment of a special energy commission, consisting of Hungarians, Czechoslovaks, and Austrians. She would be able to allocate 7 million schillings

from her budget to this. Said Flemming: "Together we are strong against the nuclear lobby." [passage omitted]

Austrians 'Satisfied' With CSFR Nuclear Plant Safety Level

AU2008134090 Prague HOSPODARSKE NOVINY
in Czech 14 Aug 90 p 1

[CTK report: "The Austrian Experts Are Satisfied"]

[Text] Vienna—A group of Austrian experts has returned from its inspection of the Jaslovske Bohunice Nuclear Power Plant with more positive impressions than it expected. "It seems that Bohunice is equipped with better safety technology than its East German sister plant in Greifswald," said Professor Manfred Heindler, head of the group of experts, at a news conference in Vienna. "The Czechoslovaks have tried very competently and very comprehensively to increase the safety level as far as this Russian-type of plant is concerned."

"Three days ago, during our first meeting with the plant's managerial staff and experts from Prague, we were able to tour the entire facility as much as possible during its operation," said Professor Heindler. "At the same time, we gained an overall 'satisfactory impression' about its quality. Its operation is controlled 'extraordinarily carefully' and the additional equipment, installed following an agreement with Soviet experts, is of an 'obviously high quality.' Professor Heindler cited as an example of this the strengthening of both reactors' outer casings, which leads to a lower level of radioactivity outside the power plant. He also mentioned other technical equipment intended to increase safety.

Apart from this, the Czechoslovak side has handed over numerous materials which it is now necessary to process. "During our conversations, I got the impression that the Czechoslovak side has abandoned its previous reservations, and is now taking the discussions very seriously. Their pledges have exceeded normal politeness. I feel that Czechoslovakia will provide us with all possible help," said Heindler characterizing the good atmosphere which prevailed when contacts were first established at Jaslovske Bohunice.

On Friday [10 August] a "permanent" invitation was extended and the Austrian experts were assured that they may come to Bohunice anytime and carry out a detailed inspection of the reactors. At the same time, they will have free access to all the major parts of the facility. The experts are resolved to complete their work this year.

Soviet Baltic Ecological Expedition Visits Helsinki

PM1608110190 Moscow Television Service in Russian
0830 GMT 9 Aug 90

[From the "Vremya" newscast: Report by V. Bogatkin, identified by caption, on Soviet-Finnish Baltic-90 expedition]

[Text] [Newscaster] The "Baltic-90" scientific ecological expedition has set off aboard the vessel "Professor Khlyustin."

[Reporter] One of the leaders of the expedition is USSR People's Deputy Pilot-Cosmonaut Viktor Savinnykh.

[Savinnykh, no caption] Today the expedition has arrived in Helsinki. [Video shows Helsinki quayside and vessel "Professor Khlyustin"] Finland, the first country of the Baltic region is our first port call. We have already held a number of meetings at the Ministry of Environment, the Maritime Institute, and other establishments, and everywhere we see Finnish experts' interest in the joint elaboration of large-scale projects to protect the Baltic Sea.

[Reporter] A news conference was held on board the vessel at which members of the expedition briefed the media on the program and aims of the "Baltic-90" scientific ecological expedition.

"Finmap," a well-known Finnish company, invited the members of the expedition and acquainted Soviet cartographers with its achievements in the sphere of compiling modern maps.

[Savinnykh] We are visiting this company which is renowned in the world for its excellent maps, and as cartographers we are today concerned about ecology. We would like to jointly compile ecological maps which are so necessary today to provide information about what is happening around us.

Soviet Industrial Pollution From Kola Peninsula Seen Threatening Scandinavian Forests

90WN0201C Oslo ARBEIDERBLADET in Norwegian
13 Jun p 6

[Article by Svein Erik Bakken: "The Threat From Kola"]

[Text] The population of Pasvik in East Finnmark feels the foundations of its life threatened by evergreen forest preservation efforts and by the toxins which the nickel industry on Kola spews out in enormous quantities. The people of Pasvik and Finnish Lapland are ready to take action to save the forest, reindeer grazing and their settlements.

So said Hans Mollersen, leader of the South Varanger Cooperative Organization to the ARBEIDERBLADET.

"A strange "alliance" between conservation interests in Norway and tough industrial interests on the Kola Peninsula may prove to be the final nail in the coffin for the Pasvik community, a local community which had a hard enough time surviving before," according to Mollersen.

Important Forest

In Pasvik, the livelihood derived from the forest is of decisive importance. The forest provides work for 50 people. In addition, the forest is an important part of the

income base for agriculture and an important grazing area for the reindeer in this part of Finnmark.

"60,000 decares [approx. 15,000 acres] of the best forest in Pasvik have been set aside as a national park from before. Now an additional 30,000 decares of the most productive forest have been registered as worthy of protection in connection with efforts to preserve the evergreen forests," continues Mollersen.

Threat

"The result will be big problems with respect to Statens Skoger's [State Forest Agency] efforts to operate profitably. We are afraid that the state will discontinue the forest operation. Thus, in the short run conservation of the evergreen forest threatens all of the jobs which are connected to forestry in Pasvik," the leader of the organization maintains.

"In the long run, the "poison" from the East in the form of emissions of sulfur dioxide (SO₂) from the world's largest nickel plants in the towns of Nikel and Zapolyarnyy poses the greatest threat to the forest and the reindeer grazing lands," he says.

Pressure

The nature conservation societies of Norway and Finland have both asked the Finnish and Norwegian authorities to exert pressure on the Soviet Union as soon as possible so that the deadly emissions from the heavy industries on the Kola Peninsula can be reduced to comply with international requirements.

"Norway must offer the Soviets the most modern processing, cleaning and energy technologies. Norway must also contribute know-how and financing, possibly in cooperation with Finland," says the Norwegian Nature Conservation Society.

Actions

Measurements of damaged forest and other vegetation indicate that East Finnmark and Finnish Lapland have already been hit hard, while the forest on Kola is entirely dead in many places.

"We are afraid that the "desert" on the Russian side of the border will spread over to us. Many days the concentration of sulfur is so high that we can taste it in our mouths, and the needles of the evergreens turn brownish white," continues Mollersen.

"A stop must be put to this as soon as possible. As part of this effort, we will, along with the Finns, draw attention to our demands with demonstrations along the Soviet border this weekend," he informs.

"Stop the Death Cloud"

The newly-started campaign known as "Stop the Death Cloud From the Soviet Union" stands behind the efforts on the Norwegian side. In addition to the Finnish Nature

Conservation Society, Finnish politicians are also calling upon the Finnish Government to go in and help the Soviets clean up their emissions.

"On the other hand, there is little or nothing going on in Norwegian political circles. We now wish to awaken Norwegian politicians so that they will get out on the field and follow up with similar demands," says Hans Mollersen, leader of the South Varanger Cooperative Organization.

Finnish Study Finds Soviet Help Vital in Acid Rain Reduction Effort

90WN0212B Helsinki HELSINGIN SANOMAT
in Finnish 28 Jun 90 p 10

[Article: "Finland's Sulphur Discharges Can Be Cut in Half at Moderate Cost; Soviet-Finnish Cooperation Necessary"]

[Text] Sulphur fallout can be reduced to a level the natural environment can withstand in Finland at moderate cost only by cooperating with the Soviet Union.

According to a State Technical Research Center (VTT) study, the Soviet Union's energetic participation in reductions of its own sulphur discharges and the expenses resulting from them constitute a necessary condition for keeping costs down. Nearly a third of our sulphur fallout reaches Finland from the Soviet Union.

It would cost about 3 billion markkas per year to achieve the goal of 0.5 of a gram of sulphur per cubic meter set by the Council of State by the year 2000. The Soviet Union would have to pay 2 billion markkas of this amount. The funds would be directed to the Estonia-Leningrad area, Eastern Karelia, and Kola. To attain the projected fallout level, it is also assumed that the European countries will reduce their discharges by 60 percent of the 1980 level.

The lumber and oil-refining industries, in particular, spew acid-producing sulphur into the air.

Finland's sulphur discharges dropped sharply in the 1980's and, according to the VTT, will continue to be reduced. Finland has managed to cut its discharges down to half of the 1980 level. There is nevertheless room for improvement because 1.2 grams of sulphur per cubic meter a year fall on southern Finland. The cleanest [part of the country] is in western Lapland, where there is 0.4 of a gram of sulphur per cubic meter.

Finland has signed an agreement on sulphur discharges with 20 other European countries, which obligates them to reduce discharges by at least 30 percent of the 1980 level during the early 1990's.

Of Europe's biggest sources of sulphur, Poland was unable to reduce its discharges by 1986, the Soviet Union achieved a reduction of about 15 percent, West Germany reduced its by a third, and Great Britain by a fifth.

The VTT proposes a tightening of restrictions on sulphur discharges to bring them down to the level exacted by the best technology as a remedy for reducing sulphur discharges.

The sulphur content of fuels, especially heavy fuel oil, could be further lowered. In its study, [the VTT] also proposes that natural gas be used more in the production of energy. More attention than before should also be paid to energy conservation and efficient production.

According to Meteorological Institute measurements, sulphur fallout has decreased, but rainwater acidity has remained the same as before; in fact, it has even slightly increased. In the estimation of acting department head Goran Nordlund, one reason for this may be sulphur discharges from Eastern Europe. Reduction of sulphur discharges is affecting Western Europe, which can be seen as the decrease in sulphur fall-out in southern Finland.

For the acidification situation to improve on the whole, nitrogen oxide discharges would also have to be simultaneously reduced, Nordlund noted. It is more costly to reduce nitrogen discharges than sulphur discharges.

USSR, Norwegian Officials Discuss Novaya Zemlya Nuclear Testing

PM2408104490 Oslo AFTENPOSTEN in Norwegian
15 Aug 90 p 3

[NORSK TELEGRAMBYRA report: "No Clarification Over Nuclear Base on Novaya Zemlya"]

[Text] Foreign Ministry Under Secretary of State Knut Vollebaek was given no promises that the Soviet nuclear testing program will not be moved to Novaya Zemlya when he met yesterday with representatives of the Soviet authorities. However, the rumor that a Soviet nuclear test is imminent was denied.

During the talks with Deputy Foreign Minister Igor Rogachev and disarmament department head Anatoliy Belov, it was stressed that the Supreme Soviet has not yet reached a decision on the matter. At present a special Supreme Soviet committee is looking at the consequences of using two possible nuclear test sites, one of which is Novaya Zemlya. The committee will report back to the government, which will then advise the Supreme Soviet.

"I do not think therefore that there is any reason to expect any immediate surprises. It will take a fair while, perhaps months, for the matter to be decided," Vollebaek told NORSK TELEGRAMBYRA.

He said that the Norwegian authorities, who have raised the matter with the Soviet authorities four times, want an open process where there will be contacts between parliaments in addition to contacts at the government level.

Norwegian Project Using Teeth To Determine East European Pollution Levels*90WN0230B Oslo AFTENPOSTEN in Norwegian
25 Jul 90 p 32*

[Article by Rune Indroy: "Baby Teeth Are To Chart Environmental Pollution"]

[Text] Baby teeth from Poland, Hungary and the GDR are being collected now and sent to Norway to reveal serious pollution problems in Eastern Europe.

Baby teeth are good indicators of how serious the environmental problems are with which individual countries are contending. The teeth pick up substances like lead, cadmium, copper, and zinc over a period of years.

It is the Anatomical Institute at the University of Bergen that is to examine teeth that are being collected in East Europe at present.

Professor Gisle Fosse hopes to get at least 500 teeth sent by each of the East European countries.

"Baby tooth material collects elements that are taken into the body through air and food. That reflects what we also have accumulated in our inner organs. In our analysis, we use a chemical method of measurement to ascertain whether the individual has taken in dangerous substances," Fosse says.

Earlier investigations have shown a clear connection between the quantity of lead in the teeth and the degree of industrialization in a child's environment.

The project that is under way now has attracted a great deal of attention in East Europe. Teeth from agricultural and industrial areas are to be collected. The results of the analyses can then form the basis for concrete environmental measures.

Results To Be Compared

Fosse has told the NYTT newspaper of the University of Bergen that that kind of research in regard to environmental problems is useful in many ways.

"Measurements of air and water indicate potential dangers and can put sudden changes on record. On the other hand, we measure what the organism has picked up over a rather long period of time. We can measure elements that have been lying in the soil and that have been released from it and taken into a human body, even after the external environment has been improved in accordance with measurements of the water and the air," Fosse says.

Simultaneously with the collection work in East Europe, the collecting of baby teeth in Norway has also been initiated. It is 18 years since the last investigation in this country. Finally, the results from the East and the West will be compared.

Tanker Collision Causes Oil Spill in Strait of Gibraltar*NC0808083990 Nicosia Domestic Service in Greek
0700 GMT 8 Aug 90*

[Text] About 8,000 tons of oil were spilled in the sea in the Strait of Gibraltar, following the Cypriot tanker Cypriot Spirit's collision with a Norwegian tanker off the coast of Gibraltar. Spanish maritime authorities announced that an oil slick was spotted about seven miles off the coast of Spain and three miles off the coast of Morocco. Spanish officials ruled out, though, the possibility of environmental pollution.

No information regarding casualties was announced. It has not been verified which tanker spilled the oil.

Brazil, NASA, To Jointly Research Amazon Environment*PY2108035490 Brasilia Domestic Service in Portuguese
2200 GMT 20 Aug 90*

[Text] NASA and the National Institute of Space Research (INPE) will jointly research the effect of fires in the Amazon on the atmosphere. This information was disclosed by Science and Technology National Secretary Jose Goldenberg. Goldenberg commented on NASA interest in space research carried out by the INPE.

[Begin Goldenberg recording] A group of NASA experts spent a week at INPE with the purpose of increasing cooperation with this institute. In other words, our research—our research capacity—has reached such a degree that it makes the INPE a brother institute of NASA. Talks on other means of cooperation were discussed. One very interesting proposal is investigating the impact the fires in the Amazon region have on the atmosphere of the Atlantic Ocean. This is, in fact, a new proposal because what is usually assessed is the effects fires have on Brazil. This proposal is different because it is known that this problem has an impact on the entire world climate.

In addition to this program there are various others, which shows that the high level of our research has allowed NASA to approach us and [words indistinct]. Therefore, we will now be able to carry out highly developed space research and this, I believe, places Brazil in an extremely favorable position in the international context. [end recording]

Goldenberg explained that the equipment to be used by INPE will be supplied by NASA. He also said that he believes this U.S. cooperation will contribute to learning about the behavior of the climate, even in the northeastern region, where INPE has other research centers.

Australian Foreign Minister Announces Ban on Antarctic Mining

BK1708152490 Hong Kong AFP in English 0904 GMT 17 Aug 90

[Text] Hobart, Australia, Aug 17 (AFP)—Australia will ban mining and mineral exploration in its Antarctic territory, Foreign Minister Gareth Evans said Friday.

Mr. Evans said in a speech here that Canberra would enact laws to ban any mining on Australia's 42 percent slice of Antarctica and would prohibit Australians from mining in the remaining sectors.

"This legislation is an important step in Australia's campaign to maintain the Antarctic forever as the world's last great untouched and unexploited wilderness," he said in a joint statement with Environment Minister Ros Kelly.

"Antarctica must stay white," Mr. Evans said.

"The Australian campaign (to ban mining in) the Antarctic has been joined by France since August 1989 and is continually gaining momentum," he said.

France and Australia, as two of the seven territorial claimants to the area, vetoed a mining convention adopted in 1988 which would have allowed mining on the frozen continent.

Mr. Evans said he hoped that a special consultative meeting of the 22 Antarctic treaty countries in Chile in November would come to an agreement that would help preserve the area.

Opponents to mining in the area want Antarctica declared a world park which would be off-limits to all developers.

Mining on mainland Antarctica is so far mostly only a theoretical threat. There are coal and mineral reserves under the ice, which is three kilometres (nearly two miles) thick, but they are too expensive to recover at current prices.

Mr. Evans said the legislation would be introduced in the next session of Parliament beginning next week.

"Mining for the purposes of the legislation will include oil drilling, and the related steps of prospecting and exploration," he said.

More on Australian Antarctic Mining Ban

BK1808072890 Melbourne Overseas Service in English 0500 GMT 18 Aug 90

[Text] Australia is to bring in laws banning any mining or exploration activity in its Antarctic territory. The foreign affairs minister, Senator Gareth Evans, says the necessary legislation will be introduced in the coming session of parliament. The law will prohibit in Australian territory all the activities Australia and France have

proposed banning under an international agreement to preserve the present continent as a wilderness reserve.

Senator Evans says the laws will extend from the land mass offshore to the continental shelf and will prevent prospecting, oil drilling, and mining by both Australians and non-Australians. He says the legislation will illustrate what Australia expects collective international action to achieve.

Senator Evans says that Australia wants to send a signal to the international community that its commitment to the Antarctic wilderness proposal will not falter. The joint Australian-French plan is due to be debated at a meeting of Antarctic treaty nations in Santiago, Chile, later this year.

Belgium Aids PRC Forestry Development in 'Three Norths'

OW1308201490 Beijing Television Service in Mandarin 1000 GMT 8 Aug 90

[Announcer-read video report]

[Text] The ceremony of the signing of a forestry development program in Northwest, Northern, and Northeast China—known as the Three Norths—took place in Beijing yesterday.

The program is an aid project from the Belgian Government, and will be carried out by the Food and Agriculture Organization [FAO] of the United Nations. [Video shows two males, one Caucasian and one Chinese, signing some documents on a long table on which small flags of the United Nations, Belgium, and China can be seen. Standing behind them are seven males and one female. After signing the documents, the two exchange the writing instruments and shake each other's hands]

Wang Lianzheng, vice minister of agriculture; and (Darr), FAO representative to China, signed the documents on behalf of the Chinese Government and the FAO.

Belgian Ambassador to China Franz Baekelandt and Chinese Vice Minister of Forestry Liu Kuangyun attended the signing ceremony.

According to the agreement, the Belgian Government will provide a trust fund of \$4.5 million to support a five-year, first-stage program of building a shelterbelt in Northwest, Northern, and Northeast China. This has been the biggest foreign-aided technical development project which the Ministry of Forestry has ever received through the FAO.

Soviet, Japanese Environmentalists Discuss Cooperation

LD0708165590 Moscow TASS in English 1641 GMT 7 Aug 90

[Text] Moscow August 7 TASS—USSR State Committee for Nature [Environmental Protection] Chairman

Nikolay Vorontsov on Monday met the delegation of Japanese parliamentarians led by S. Totsuka, a representative of the Environmental Protection Committee. They discussed the development of cooperation between the USSR and Japan in environmental protection.

The sides examined promising areas of cooperation, specifically, ecologically-clean power engineering, remote probing of the environment from Soviet satellites, [word indistinct] Japanese-made analytical equipment, exchange of flora and fauna gene funds in the Far Eastern region, and training of Soviet and Japanese scientific staff at Soviet nature preserves.

International Agricultural Ecology Seminar Held in Vietnam

*BK0408135290 Hanoi VNA in English 0655 GMT
4 Aug 90*

[Text] Hanoi VNA August 4—A seminar on agricultural ecological research was held in Can Tho, capital of the Mekong delta province of Hau Giang, from July 18-31.

The seminar, co-sponsored by Can Tho University, the Agriculture and Forestry College of Ho Chi Minh City, the Southeast Asian Universities Network for Ecological Research, and the Europe-Asia Institute (EAPI) of Hawaii University, was attended by 104 scientists of seven countries, including Canada, China, Indonesia, Laos, Thailand, the United States and Vietnam.

The participants discussed ecological research methods which had been successfully applied in various parts of the world, especially in Asia, the role of man in agricultural ecology, the agricultural ecological research in the mid-land of Vietnam, and the relations between agricultural ecology and rural development, policies etc.

The seminar also organized field trips in surrounding districts to collect data for an economic strategy for Vietnam in the next decade.

Soviet Delegate Addresses UN Environment Meeting

*LD0708225790 Moscow TASS in English 2144 GMT
7 Aug 90*

[By TASS Correspondent Vladimir Manvelov]

[Text] Nairobi August 8 TASS—Soviet Representative Boris Maiorskiy addressed the first session of the preparatory committee of a United Nations conference on the environment and development here on Tuesday. The conference is to be held in Brazil in 1992.

The leader of the Soviet delegation said the magnitude and unique nature of the forthcoming forum speak in favour of the need that its decisions intended for a long-term perspective be taken at summit level. In this connection the Soviet representative suggested that the committee adopt an appropriate recommendation to this effect at the current session.

Touching upon the question of a final document of the forthcoming conference, Maiorskiy emphasised that this should be a comprehensive action plan including universally acceptable approaches to the common goal of ecological revival of the earth. Such a plan should suggest solutions on such major issues as the financing of international nature conservation activities and the exchanges of resource-saving technologies between countries.

The Soviet delegation believes that the conference should adopt a special document generalising principles for the conduct of states in the field of environmental protection—a kind of code of ecological ethics, Maiorskiy said.

The forum could endorse and open for signature international conventions on climate and biological diversity. The forthcoming conference could also adopt a document on the ecological education of the population. Mankind has to pay a particularly high price for gaps in this branch of human knowledge, Maiorskiy said.

A full-value conference is inconceivable without close cooperation with public environmentalist organisations. The Soviet delegation believes that this session should adopt "specific recommendations about inviting public forces to participate in preparing the forthcoming conference, Maiorskiy said. [no closing quote as received]

The Preparatory Committee session, which is being attended by representatives from a majority of U.N. member nations, will continue until the end of August.

SOUTH AFRICA

SECHABA Details ANC Nuclear Policy

MB0808131990 Lusaka SECHABA in English
Aug 90 pp 12-13

["Towards a Nuclear Policy" by Denis Goldberg]

[Text] South Africa is a nuclear power. It is necessary for us in the ANC [African National Congress] to consider very seriously the policies we should be putting to the people of our country. This article is an attempt to get a discussion going so that we can clarify our own position.

There are a number of elements of South Africa's nuclear capability that are publicly known, and others for which there is sufficient evidence to assert their existence.

There are at least two research reactors, one at Pelindaba and the other at Faure. There is the gas centrifuge concentration plant capable of producing weapons grade fissile material at Velindaba. There is the nuclear electricity power station at Blaauwbergstrand on Table Bay supplied by the French group Framatome. This reactor is designed to produce plutonium.

With its vast reserves of coal and the existing technology, the production of electricity from coal-fired thermal plants is cheaper in capital costs than nuclear power generated electricity. The facts, that the nuclear power station is built on a geological fault, and the wind patterns over Table Bay, create a truly hazardous situation, have been well established. Why then does South Africa have a nuclear power station? The Chairman of ESCOM [Electricity Supply Centre], some years ago, said that the question of unit costs of production had not been the decisive factor. The station had been built for strategic reasons, he was reported to have said. Did he mean that a power station capable of handling a large base load was necessary? We may doubt that, for that is what large coal-fired stations are best at achieving at low unit cost. The strategic reason may have been to have a power station not dependent upon coal mined by black mineworkers who might strike for long enough to stop the working of thermal stations. South Africa is known to be eminently capable of building up strategic, dispersed stockpiles of many minerals and raw materials. This reason is therefore as unlikely one. The strategic reason was clearly to produce the plutonium necessary for nuclear weapons.

When we couple this with the boasts about their capacity to produce weapons grade material and the known links between South African and Israeli military and nuclear research both in South Africa and in Israel at Dimona, the strategic reason becomes even clearer. We must add Operation Phoenix, the joint South African- Israeli project which led to the nuclear explosion over the Southern Ocean picked up by the U.S.'s Vela satellite in 1979.

For these reasons, as we move ever closer to meaningful negotiations, we have to be clear about so-called peaceful nuclear capacity and military nuclear capability, and how to take positions on both issues.

To start with military capacity, we can say quite categorically that we cannot envisage any situation in which we would consider the use of nuclear weapons. All that we and our neighbours in Southern Africa have lived and died for would be turned to ashes in a nuclear wasteland. We would not want that. It would destroy our Freedom Charter, "there shall be peace and friendship." That clause of the Charter goes on to say that relations between states shall be based upon mutual respect for the boundaries and sovereignty of all countries, and that disputes shall be settled peacefully. Therefore we have committed ourselves not only not to attack any neighbour but not to initiate any warlike activity. It follows that we could not possibly envisage using nuclear weapons, which are the ultimate in destructive capacity, and not only destructive of national sovereignty but of the possibility of life itself.

What is more, we have argued with absolute correctness that the violence of South Africa against its neighbours is inherent in the apartheid system of domination internationally as much as internally. Apartheid South Africa, while never admitting to possessing its nuclear weapons, has threatened to use nuclear weapons against its neighbours, thereby leaving the inference of that possession to stand.

Since we are committed to the ending of racist exploitation of our own people, we must extend that to the people of our neighbour countries. In numerous statements we have committed ourselves to the peaceful development of the whole of Southern Africa through economic relations based on equality and regional co-operation. What we have to avoid is allowing ourselves to be inadvertently co-opted to the continuance of the present policies of the apartheid regime in backing the multinational corporations in their exploitation of Africa. We have to break out of that aspect of colonial development so that we can indeed live in peace with our neighbours.

What is required to us is that we declare now that we would sign the Nuclear Non-proliferation Treaty (NPT) at the very first opportunity. We must not allow the apartheid regime to get away with subterfuges such as declaring that nuclear facilities have been shut down and mothballed, therefore not subject to inspection in terms of the NPT.

We need to state now that we would invite international supervision of the destruction of all nuclear weapons. Our neighbours would breathe more easily in the knowledge that we have shown that we will resist to the utmost South Africa's domination and exploitation of the region.

By signing the NPT we would declare that we would not call upon our neighbours to commit themselves to never

obtaining nuclear weapons while holding that threat over their heads. We would give proof in advance that we are committed to peaceful international relations based upon the equality of sovereign states.

By declaring that we would shut down South Africa's only nuclear power station we would be saying that weapons grade fissile material is not one of our concepts of strategic necessity, and we would say to the people of the Western Cape Province that we are aware of the environmental dangers of nuclear power production. We would reduce to the minimum the need to find safe storage of dangerously radioactive wastes. We would have to deal with those left to us as a terrible legacy by the apartheid state. We would, at a stroke, say to the world that the ANC and the people of South Africa, while desperately wanting to develop our resources for the benefit of our people, will not do stupidly dangerous things to try to speed up that process.

We would also win massive international support from millions of people all over the world who are committed as we are to ensuring that the risks of nuclear war are reduced to vanishing point.

All of these goals are important. We in the ANC should take the lead now by declaring where we stand and putting our policies on nuclear power and energy before the people of our country.

Concern Over Corporation's Threat to Water Supply

MB0808101790 Johannesburg THE DAILY MAIL in English 6 Aug 90 p 10

[By Gaye Davis]

[Text] ARMSCOR [Armaments Corporation of South Africa] subsidiary SOMCHEM—fielding flak over its intended purchase for R[and]500 of 395 hectares of land which could threaten the supply of water to south-western Cape coastal resorts—is prepared to hold talks with objectors.

However, it is insisting on the presence of the Betty's Bay municipality, which has already indicated its support of the move.

The disputed land lies four kilometres from Rooi Els, near Pringle Bay. Leased by SOMCHEM for the past 11 years at a fee of R25 a year, it is used for testing propellants for military arms, including rocket systems.

The local councils of Rooi Els, Pringle Bay and land-owners' and residents' associations are bitterly opposed to the land's sale and SOMCHEM's presence in the area.

Betty's Bay municipality has so far refused to attend meetings called in a bid to resolve the dispute, for reasons that are as yet unclear. So has SOMCHEM, on the basis that all parties should be present at such talks.

On Friday, SOMCHEM general manager Jacob van Wyk denied the company had agreed to subsidise ESKOM's [Electricity Supply Commission] bringing electricity to the area as a quid pro quo for the Betty's Bay municipality supporting the company's purchase of the land.

SOMCHEM already had its own generators at the site and would take ESKOM power only if the price was right, Van Wyk said.

However, another official, F.A. Humphries, conceded that if SOMCHEM were to take ESKOM power, it would considerably reduce the cost per unit bought by other consumers in the area, of which Betty's Bay municipality would be one.

SOMCHEM is prepared to exclude the dam and the "most important catchment area" from the sale, claiming its operation will not be affected.

Opponents to the move reject this, pointing out that the land represents one of the best dam sites in the area. If it were to be enlarged to store run-off from its own and other catchment areas—a likelihood in view of increased demand for water in the area—SOMCHEM operations would be affected.

"We don't feel a valuable asset like this logical water storage site should be transferred out of the hands of local authorities to a body who's job is to develop weapons," said Dr. Denis Cowen, chairman of the Rooi Els Local council.

In turn, they are proposing that SOMCHEM sign a short-term lease with clauses requiring independent monitoring of the water and effects on the environment built in.

Johannesburg City Council Probes Tap Water Contamination

MB1308120190 Johannesburg THE DAILY MAIL in English 13 Aug 90 p 1

[By Eddie Koch and Samantha Weinberg]

[Text] The Johannesburg City Council's health department is investigating the contamination of drinking water in some city suburbs, where traces of industrial poison—including highly toxic mercury—are still being found.

A new DAILY MAIL (DM) investigation has found [that] some reservoirs still contain levels of mercury considered dangerous by the World Health Organisation, with those in Yeoville and Katlehong showing levels at twice the WHO standard for Third World countries.

However, tests conducted by the city council's laboratories which confirmed traces of mercury in Yeoville's water found levels well within world standards.

The new DAILY MAIL investigation has also identified three major sources of pollution in potable water supplied to towns and municipalities downstream from the Vaal, where the problem is even more severe than in Johannesburg:

AECT's [African Explosive Chemical Industries] Midland factory near Sasolburg, which uses raw mercury to manufacture chlorine and caustic soda, has government permission to discharge, directly into the Vaal catchment area, levels of the highly toxic metal more than six times higher than the legal limits enforced by governments in Europe. Samples of sediments, taken from below the factory's effluent pipe and analysed by a top-class laboratory, showed a staggering 10,000 parts per billion of mercury in the soil of the river bed.

Mine dumps in the Johannesburg area and on the East Rand are leaching large amounts of sulphates, as well as smaller amounts of mercury and arsenic, into the Vaal's catchment area. In the words of a senior Johannesburg health official, river pollution caused by mines on the Reef is a "nightmare".

The Sasol factory in the Vaal is another source of serious river pollution. A study conducted by researchers from the government's Council for Scientific and Industrial Research (CSIR) four years ago found at least 43 toxic compounds in the waters of the Vaal between Sasolburg and the town of Parys. Twenty-seven of these contaminants appear on the list of "priority pollutants" drawn up by the Environmental Protection Agency in the United States.

The CSIR study notes that high levels of river pollution below Sasolburg are creating serious health problems for Parys and other municipalities downstream from Sasolburg.

The quality of Johannesburg's drinking water, and that of other municipalities to the north of the Vaal Dam, appears to be in line with standards laid down by the WHO for Third World countries. But there are traces of industrial poisons—including mercury—in the water of some suburbs in the city, and the health department has agreed to look into this as a potential problem.

The new DAILY MAIL study was carried out in the wake of controversy after a report (DM, June 20) claiming that traces of toxic mercury at twice the international safety limit were present in the water of some reservoirs. A second set of tests of Johannesburg's water, conducted for THE DAILY MAIL by an independent laboratory, indicated that levels of mercury considered dangerous by the WHO still exist.

First Dimethyl Ether Plant in Africa Opened

90AF0415Z Johannesburg ENGINEERING NEWS
in English 6 Jul 90 p 4

[Text] What is claimed to be the first dimethyl ether (DME) plant in Africa and the third of its kind in the world has been opened by Merebank-based CG Smith Chemicals.

DME, or Prozone as it is known in South Africa, is considered to be one of the best ozone-friendly alternative to CFCs.

The plant was officially opened by Environment Minister Gert Kotze on June 7 and a keynote address was given by the chairman of the Wildlife Society's Ozone Assessment Board Ian MacDonald.

The plant already has orders for an annual 1,000 tons of Prozone for the South African market.

"This is ahead of our expectations and we are sure that we will capture a substantial market share.

"We have the capacity to grow as the plant is capable of producing 5,000 tons of Prozone a year," says CG Smith GM Mike Buchanan.

"Now that our plant is on stream, we hope to make major inroads into the paint spray market as Prozone—with its excellent solvency—has a natural affinity for these products.

According to a company press release, Prozone has the unique quality of being miscible with water, meaning that aerosols can be formulated with reduced or zero flammability.

The company has also invested R250,000 in laboratory facilities to assist manufacturers in the change over to Prozone.

The company's fully-equipped laboratory in Alrode is staffed by a full-time aerosol technologist and the facility is offered free-of-charge to manufacturers.

UGANDA

FRG Representatives Offer To Study Environmental Problems

AB1108120890 Dakar PANA in English
1131 GMT 11 Aug 90

[Text] Kampala, 11 Aug (UNA/PANA)—The leader of a visiting team of West German parliamentarians, Dr. Reinhard Gohner, has expressed the willingness of his country to look into possible solutions to the problem of environmental degradation in Kilembe (about 330 kilometres west of Kampala) caused by the high percentage of copper sulphate in its soils. Dr. Gohner said at a meeting with

Uganda's minister of environmental protection, Moses Kintu, on Friday that West Germany had ample knowledge about the adverse effects of environmental pollution and could find a solution to the problem in Kilembe. He said that Uganda's tourism potential could also be enhanced if

the country's Ministry of Environmental Protection hastened drawing up the boundaries of Bwindi Forest (southwestern Uganda), so that it is turned into a national park. The German delegation has been visiting a number of national parks in Uganda.

Environmental Impact of Increased Fossil Fuel Burning Assessed

90FEO060A Beijing ZHONGGUO HUANJING BAO
[CHINA ENVIRONMENTAL NEWS] in Chinese
22 Feb, 6 Mar 90

[Article by Jiang Xiangli [1203 6272 7642]: "Energy Shortage and Pollution From the Use of Coal"]

[22 Feb 90 p 3]

[Text] Energy "feeds" our industry. It is an essential ingredient for our "four modernizations" program, and an essential element towards satisfying the increasing demands of the population for material and cultural needs. Energy shortage and pollution caused by using coal as fuel have now resulted in severely limiting our country's economic and social growth. In the past few years, power failures have accounted for a loss of 200 billion yuan in our industrial and agricultural sectors. While hydroelectric power and solar energy are clean types of energy, coal, petroleum, and natural gas are polluting types of energy. Coal is the main source of energy in China, and as such it seriously pollutes our environment. In the Eighties alone, our loss due to atmospheric contamination was on the order of seven to ten billion yuan.

Different countries have different energy structures and consumption patterns. The per capita energy consumption in the United States of America is about eight times that of the world, and tens of times that of developing countries. Japan has 3 percent of the world's population and yet it consumes approximately 10 percent of the world's petroleum output. Developed countries produce mostly petroleum and natural gas while developing countries produce mostly coal and organic matter. The up-and-coming type of energy is nuclear energy, which forms about 7 percent of the world's energy make-up. However, in a few countries such as France and Belgium, nuclear energy is their major energy form, making up about 70 percent of these countries' total output.

1. Energy Shortage

China gets 95 percent of her energy from mineral sources. As far as mineral resources are concerned, China ranks sixth in the world both in quantity and in variety. Of the 45 varieties of important minerals, China's reserves are second in abundance only to the Soviet Union and the United States. However, China's per capita share is less than half the world's per capita value, and ranks 80th on the world scale. Our per capita share of mineral resources (coal, petroleum, natural gas) is only one third of the world's per capita share, less than one-seventh of the per capita share in the USSR, and approximately one-tenth of the per capita share in the United States of America.

In 1988, China produced 970 million tons of coal, 137 million tons of crude oil, and 108 billion kilowatt-hours of hydroelectric power; the total primary energy

resources output was approximately 950 million tons of standard coal. While our total production is the most abundant in the world, our per capita production is very low. Our per capita share of primary energy resources is only 0.86 ton of standard coal.

The major problems in energy utilization in China are as follows:

The first problem is that we waste a tremendous amount of energy. To start with, our recovery rate of deposits is low. When half of the deposits are harvested, the other half goes to waste. The recovery rate of coal is only approximately 40 percent. Our second problem is our low thermal efficiency. In China, the thermal efficiency for coal is less than 30 percent, in comparison with 57 percent in Japan, 51 percent in the United States, 40 percent in Western Europe, and 36 percent in India. A low coal thermal efficiency means that for every 100 tons of coal deposits harvested from the ground, only a few tons are used effectively; the rest is lost in the various stages of mining, processing, transportation, and burning. In China, only 12 tons per hundred are efficiently used.

Energy consumption is too high. China's industrial sector suffers from low economic efficiency because we consume too much raw material and energy. Analysis shows that the energy consumption for every U.S.\$100 million of our GNP is more than any other country in the world. The energy consumption for every additional U.S. dollar of GNP is about three times higher than the world average, seven times higher than that of Japan. Our energy consumption per unit of GNP has been monotonically increasing. Statistics show that the energy consumption per 100 million yuan of national income was 178,000 tons of standard coal in 1979, a value much higher than the 91,800 tons in the "First 5-Year Plan" and 136,000 tons in 1965. When we compare our energy consumption per each U.S. dollar of industrial output value it is 5.8 times the Japanese value, 4.2 times the GDR value, 2.7 times the U.S. or Indian value. In 1986, China consumed 809 million tons of standard coal while Japan consumed 567 million tons. However, China's GNP for that year was only 1/6 that of Japan.

The way our economy operates is such that it uses large quantities of energy resources while producing very little output; it wastes a lot of energy while at the same time consumes a lot as well. As a result, we have energy shortages and a seriously contaminated atmosphere. Our per capita income has always been low. Our economy has become "hollow," meaning we have little increasable public wealth. It is becoming increasingly difficult to support the population with the material we have. Social economical crisis looms; environmental crisis looms. In 1988, an independent accounting put the net worth of fixed-assets in our industrial institutions and enterprises at 604.04 billion yuan. At the same time, the total amount of money in savings accounts and in currency held by our citizens totaled 700 billion yuan. There are

not enough assets to be bought by the amount of money available. Our economy is indeed "hollow."

Other reasons for our energy shortage are as follows: (1) low energy flexibility coefficient. "Flexibility coefficient" is defined as the ratio between the rate of increase in energy to the rate of increase in GNP. It is generally agreed that the energy requirement of the various economic sectors is guaranteed and the national economy may grow smoothly when the flexibility coefficient is greater than 0.5 and the flexibility coefficient of electricity is greater than 1. In 1988, our national growth in primary energy resources was 4.2 percent over 1987, while industry grew by 20.7 percent over the same period. This gave a flexibility coefficient of only 0.20 for primary energy resources and a flexibility coefficient of less than 0.6 for electricity. (2) The second reason for our energy shortage is that our electrical equipment consumes more electricity than we can generate, in a 3:1 ratio. This results in an annual deficit of 200 billion kilowatt-hours. From 1986 on, we have added a lot more electricity-generating facilities and have added several tens of millions of kilowatt-hours to our disposal. By the end of 1988, the total electric-generating installed capacity reached 120 million kilowatts, generating 543 billion kilowatt-hours of electricity. The fact remains that towns and villages still suffer from electricity shortages and there is a major gap between supply and demand. (3) The third reason for our energy shortage is that we do not use our energy efficiently. This is true of the manufacturing industry, where our unit production cost is high and our production consumes a lot of energy. This is also true in our tertiary industry and in our life styles. We have built more and more high-class hotels, domestic appliances, and motor cars. All these are high energy-consuming items and aggravate our energy shortage. Take the case of a medium-sized high-class hotel. Its annual energy consumption is approximately 10 million kilowatt hours. There are now more than 1500 hotels catering to foreign visitors across the country. Take the case of the Great Wall Restaurant in Beijing. Its annual electric consumption is the same as that of the entire Beijing municipality at the time of the liberation. Today, the annual energy consumption by domestic appliances is approximately 1/6 of the country's newly added electric generating capacity. It is estimated that by the year 2000, refrigerators alone will consume more than 6 billion kilowatt hours annually. In the year 1988, China exported 30 million tons of petroleum and imported 2 million video cassette recorders and a number of motor cars. Thus on the one hand we exported energy, and on the other we imported energy-consuming appliances and motor cars. This kind of goods exchange can only aggravate our energy shortage problems.

How, then, do we face the energy shortage? To start with, we should look for more energy sources. The country has to, and soon, accelerate the development of the energy industry by expanding on the exploitation of coal, petroleum, natural gas, and hydroelectric power. From a

longer term point of view, we should eventually wean ourselves from our dependence on mineral energy. It is estimated that 80 years from now, the entire petroleum and natural gas reserves across the world will be exhausted, and that the supply of coal will last at the most another 200 to 300 years. The identified reserves in oil and gas in China shall be completely exploited before the year 2065, and the mining of coal shall become increasingly difficult in 40 years. Thus our motto of "do whatever is most appropriate for the local situation and develop various forms of energy to supplement one form with another" should be followed. We should work very hard to develop new sources of energy: solar energy, wind energy, tidal energy, geothermal energy, methane gas and nuclear energy, etc. Our second solution is conservation, that is, to use our energy resources efficiently. Energy conservation is the focal point of any energy policy. Statistics show that from 1973 to 1980, the GNP in Japan increased by 33.2 percent while the energy used per unit output value decreased 22.8 percent. China can benefit greatly from energy conservation. Just by increasing our thermal efficiency from the present value of less than 30 percent to, let us say, higher than 40 percent, the annual savings will be between 300 and 400 million tons of standard coal. This saving is enough to guarantee our energy needs for manufacturing purposes and for our day-to-day living. How do we go about conserving energy? To start with, enterprises must strengthen their management, and operational procedures must be improved. Then production techniques must be improved, manufacturing equipment must be updated. Sixty percent of the mechanical and electrical products in China are old and obsolete. These are huge energy guzzlers. We should rely on high technology to upgrade our equipment and save energy.

[6 Mar 90 p 3] [Text]

2. Exploit New Energy Resources

China has seen some success in the development and exploitation of new energy sources over the past years. However, more work remains to be done.

Solar energy: We are in the process of encouraging the use of solar energy in heating, air conditioning, greenhouses, sea water desalination, and power generation. The most frequently encountered solar appliances are solar stoves and solar water heaters. There are now 100,000 solar stoves in China, one million square metres of solar water heaters, several hundred thousand square metres of solar-heated rooms, 4000 square metres of solar-powered driers spread over 53 locations, more than 100 kilowatts of solar-powered photoelectric cells, and one million square metres of solar greenhouses.

Tibet is the one province in China where solar energy has been utilized the most efficiently. Solar stoves, solar baths, solar greenhouses, and solar-heated rooms are heavily promoted both in cities and in villages, thereby easing the energy shortage problems. Solar greenhouses enable us to grow several dozen varieties of vegetables on

the plateau; large quantities of fresh vegetables may now be purchased in local markets.

Wind energy: Our total annual reserve of wind energy is 1.6 billion kilowatts, of which one tenth is exploitable. At the end of 1988, there were 80,000 wind-powered generators across the country, with a total installed capacity of 10,000 kilowatts.

Inner Mongolia leads the country in the use of wind energy. There are 70,000 small wind-powered generators, with a total installed capacity of 7,000 kilowatts. This is enough energy for illumination purposes and for television-viewing for 22 percent of the population in pastoral areas.

Tidal energy: There are now eight tidal-powered electricity generating stations across the country, with a total installed capacity of 11,000 kilowatts.

Geothermal energy: Yangbajing, Tibet, uses geothermal energy to generate electricity with an installed capacity of 19,000 kilowatts. Electricity generated by geothermal energy constitutes one half the electricity consumption in Lhasa. The approximately 380,000 kilowatts of low-temperature geothermal energy is used in raising aquatic products, agricultural breeding, and for medical and health purposes.

Methane: The use of methane has been heavily promoted in rural areas since the early Seventies. By the end of 1988, there were more than 4.7 million methane-generating pits across the country. The average daily production of methane is 1 to 1.5 cubic meters per pit, enough for cooking purposes for a family of five. In areas where there is an electricity shortage, methane can also be used for illumination. It is a clean fuel that is easy to use. In recent years, large, industry-sized methane-generating pits having capacities of the order of 1000 cubic meters have been built in towns and cities. Methane-generating pits use mostly highly concentrated organic solid and liquid wastes from breweries, sugar mills, pig farms, cattle farms, slaughter houses, and soya bean processing plants. The advantages of utilizing organic waste are many: recycling, elimination or reduction of wastes, and conversion of environmentally unfriendly by-products into useful products. The first half of 1989 saw the number of large methane-generating pits increase to more than 1000, with a total capacity of 220,000 cubic meters. This fuel supplies more than 2600 horsepower to power stations with a total installed capacity of more than 5200 kilowatts.

Nuclear energy: Nuclear energy is used mostly to generate electricity. This is a new, promising source of energy. At the end of 1988, the total global nuclear installed capacity was 310 million kilowatts, amounting to 16 percent of the world's electricity output. The Qinshan Nuclear Power Plant, located at the foot of Mount Qin, Haiyan, Zhejiang [Province], is the first nuclear plant researched, designed, and built by our countrymen. The State Council approved its construction in 1982, the design of the plant was completed in

1983, and construction formally began in March 1984. The first phase, a project designed to produce 300,000 kilowatts, is expected to be operational by the end of 1990. The second phase, involving two generators each producing 600,000 kilowatts, has already been planned. The third phase is on the drawing board. When completed, the Qinshan Nuclear Plant will be the biggest nuclear power plant in China. The electricity generated in this plant will greatly alleviate uneven power distribution in our country. We shall find relief from the present obligation of moving coal from southern China to northern China and transmitting electricity from eastern China to western China. The Daya Bay Nuclear Plant is a joint venture between China and foreign investors. Installation of two 900,000-kilowatt generators is proceeding rapidly. It is expected that the plant will be operational in 1992. China uses pressurized water reactors (PWR's) in her nuclear plants. PWR's have been used all over the world in the last 50 years, and are recognized internationally as a safe method, economical, and mature. They are used in over 70 percent of the world's nuclear plants. In China, we incorporate safety and preventive measures in every step of the procedure, from site selection, plant design, plant construction, to operation. We adhere to strict rules to comply with our motto "First in safety, first in quality."

3. Pollution from Coal Combustion

Coal is our main source of energy. It formed 70 percent of our total primary energy resources in 1980, and 76 percent in 1986; our dependence on this fuel seems to increase with time. Coal presents environmental hazards at all stages, be it mining, processing, transportation or combustion.

The major source of our atmospheric pollution comes from the combustion of coal for both industrial and domestic purposes. Dust and sulfur dioxide are the biggest pollutants. Since the Eighties, we annually generate 23 million tons of dust, 73 percent of which comes from the combustion of coal. Our sulfur dioxide emission amounts to a total of 14.60 million tons, of which 90 percent comes from the combustion of coal.

In 1981, five cities in China, Beijing, Shanghai, Guangzhou, Shenyang, and Xi'an, participated in a global atmosphere observation project organized by the World Health Organization. In the 5-year period from 1981 to 1985, 350,000 data measurements were gathered and the health of our population was evaluated. We found that suspended particles and sulfur dioxide are generally higher in concentration in northern China than in southern China, higher in concentration in cities than in rural areas, higher in concentration in winters than in summers, higher in concentration in residential and commercial areas than in industrial areas, and that the concentrations peak in the mornings and in the evenings. If more than 70 percent of the harmful components in the pollutants, such as lead and benzo(a)pyrene, adhere to particles which are subsequently inhaled, they may seriously jeopardize the health of the population.

The basic solutions to combat pollution from the burning of coal are as follows:

- Put emphasis on city planning. Residential areas should be placed away from the summer winds blowing from industrial areas.
- Diversify energy resources, make the best of what is available locally, and use energy efficiently; improve on gas supply to cities, try supplying gas in bulk to cities and to regions.
- Encourage the use of processed coal, which has a higher thermal efficiency than unprocessed coal, and does not pollute the atmosphere as badly.
- Control smoke and dust. Set up dust-controlled areas. Significant measures in smoke control include upgrading our boilers, improving their design and operating conditions, thus allowing for complete fuel combustion. Examine the nature of the exhausts, be they in gaseous form or in powder form, and install appropriate devices to remove them economically, practically, and appropriately.
- Desulfurization, which includes desulfurizing the fuel as well as desulfurizing the exhaust from the combustion of the fuel. This is an important step in stemming the release of sulfur dioxide as a byproduct when using mineral fuel. To recover sulfur is to recover another natural resource and to prevent environmental pollution. Petroleum refineries, ammonia production plants, coal-gas manufacturing plants, and ferrous metal refineries all produce gaseous sulfur compounds. These plants should be equipped with sulfur-removing equipment. Coal-fuelled or oil-fuelled electric-generating stations, industrial boilers, and kilns all produce low-level sulfur dioxide contaminants. At this time, it would be impractical to clean up sulfur emissions from these sources because of the cost involved. However, we may attempt to do so in some plants.

4. Energy Supply in Rural Areas

In developing countries, the main source of energy is from organic matter. There are 95 countries, with half the world's population (totalling 2.5 billion people), facing this predicament. They rely on organic matter to supply energy for their daily functions such as cooking, heating, etc. At least 100 million people in this group do not get enough energy to satisfy their "daily necessary requirement," and 1.3 billion people get less energy than they need. Without appropriate measures, by the year 2000, 3 billion people will experience serious energy shortages.

Of these 2.5 billion people who rely on organic matter for their energy needs, 60 percent (63 countries and 1.5 billion people) do so by cutting down trees and harvesting the wood for fuel. In so doing they destroy the forests and create timber shortages. With trees in short supply, an alternate organic source of energy comes from

plant stalks and animal manure. It is estimated that in developing countries, about 400 million tons of manure is burned for fuel annually; this leads to a decrease of 14 million tons in grain production. The annual loss of grain production due to the loss of fertilizer through burning manure is even greater than the amount of grain relief handed out by the United Nations. In the United States, more than 70 percent of plant stalks is returned to the soil, thus making the land more fertile. However, in developing countries, more than 75 percent of plant stalks is burned for fuel. Without the stalks the land does not retain water as easily and eventually loses its nutrients, particularly the organic components.

Eighty percent of our population lives in rural areas, where most of the energy comes from organic matter. While organic sources constitute 90 percent of the energy, thermal efficiency is a dismal 12 percent. The annual fuel consumption in our rural areas comprises 200 million tons of wood, 400 million tons of stalks, an unspecified amount of coal, petroleum, and animal manure to a total of 350 million tons of standard coal. Of this amount of energy, 270 million tons of standard coal are used for day-to-day living purposes and 80 million tons for production purposes. In a 12-month period, an average of 80 million rural families suffer wood shortages for 3 to 6 months. This shows that our energy crisis is more serious in rural areas than in cities.

The rural practices of cutting down trees and burning stalks for fuel destroys our forests and eventually turns soil into sand. Such behavior strongly threatens our agricultural ecology.

To ease the rural energy-shortage problem, we must encourage the use of efficient stoves, plant more trees, encourage the use of methane, and build small hydroelectric power plants. One may be short-sighted, and seek only short-term benefits by building small furnaces, mining only rich deposits, mining indiscriminately, etc. This will relieve our energy crisis only temporarily; it does not provide a long-term solution.

Report on Laws Protecting Maritime Environment

HK1008054090 Beijing RENMIN RIBAO in Chinese
30 Jul 90 p 3

[Report: "Two Kinds of Regulations on Maritime Environment Protection To Be Enforced in August"]

[Text] "The PRC Administrative Regulations on Preventing Land-Based Pollutants From Polluting the Maritime Environment" and the "PRC Administrative Regulations on Preventing Coastal Construction Projects From Polluting the Maritime Environment" (published in this newspaper on 15 July) are to be enforced beginning 1 August.

Since the enforcement of the "Maritime Environmental Protection Law" in 1983, the situation of having no law regarding the protection of the maritime environment has come to an end. However, the law has only contained

principled stipulations governing the two major contents of the pollution of the maritime environment by land-based pollutants and coastal construction projects. In addition, according to the law, only administrative departments responsible for environmental protection at the provincial level are qualified to handle such issues. In other words, the matter is "beyond the reach" of departments responsible for environmental protection at city and county levels, which exercise the power of environmental protection in actual work, although they always "face it." For this reason, coastal provinces, cities, and counties have urged the enactment of the above-mentioned regulations, so that they have laws for dealing with maritime environmental protection. At present, 80 percent of maritime pollutants come from the land. Coastal construction projects have also produced a latent influence on the ecological cycle of the near-shore waters. The enactment of the regulations mentioned above will play a positive role in the management of coastal construction projects.

The enactment of all regulations connected with the "Maritime Environmental Protection Law" has so far been completed. The relevant departments under the State Council and coastal provinces, cities, and counties can perform their duties and attend to their work in accordance with this national "law," and do well in maritime environment protection.

Hubei Water Pollution Problem Outlined

90WN0196A Wuchang HUBEI RIBAO in Chinese
11 Jun 90 p 4

[Article by Wei Zichang (7614 1311 2490), Hubei Province Water Conservancy Survey and Design Institute: "Water Pollution Problem Cannot Be Regarded Lightly; Letters From Our Readers"]

[Text] The aquatic cultivation area of Hubei, which has had the reputation of being the "province of a thousand lakes," is one-tenth of that of the entire nation and second only to Anhui. The current 9.62 million mu of aquatic cultivation area is an important base for China's commercial fish production. But with the growth of industrial production, the volume of pollutants discharged has increased rapidly and fisheries resources have been damaged to varying degrees. Not only has fisheries output declined, but the quality of the fish has declined as well and this will have a direct impact on the physical health of the people.

According to surveys, about 30 percent of the province's lakes are polluted to some degree. This includes about 10 percent that are seriously polluted. Many exist in name only due to serious pollution or enclosure. Severe pollution of Sanliqi Lake, which has 3,000 mu of water area, has deformed fish and wiped out the shrimps, and even the lotus and water chestnuts that grow in the water are ugly and almost completely worthless. Qingshan Lake in Huangshi City used to have excellent water, but over 20 factories have been built along the shore and large quantities of organic and industrial waste water and

domestic pollutants are discharged directly into the lake. As a result, one-third of Qingshan Lake's lakebed is choked with silt, the lake water is black and smelly, and the fish are suffocating and dying. Daye Lake in Eastern Hubei has been polluted by industrial waste water and waste water from ore dressing from the plants and mining enterprises along the shore. Water quality has deteriorated year after year and according to analysis by the Aquatic Office of the Chinese Academy of Sciences, such toxic elements as copper, zinc, lead, cadmium, arsenic, and mercury in the bottom mud in Daye Lake are from several to dozens of times higher than the original bed. This has inhibited the growth and reproduction of aquatic plants and animals.

Monitoring and analysis by environmental protection departments reveals that industrial and domestic waste water now discharged in the province annually has reached 1.9 million tons (including 1.5 million tons of waste water) and the overwhelming majority of it has not been treated. It is discharged directly into rivers, lakes and reservoirs so that many rivers, lakes and reservoirs are polluted and fisheries production is damaged. At the same time, province-wide, the polluted water that does not conform to discharge standards is increasing at a rate of six percent per year and water pollution is intensifying daily. It would seem that with the constant promotion of scientific aquaculture methods, fisheries output should gradually increase. However, behind the prosperity of the market for fish lurks crisis: after the Fu River and its lakes in Huangpo County became polluted, the daily fish catch dropped from 3,120 thousand kg in the peak year to 370 thousand kg in 1985. The peak fish catch for Dongjing River in Hanyang County was 500-800 thousand kg, but the 1985 catch was only 100 kg.

The Jingzhou region with its abundant aquatic production is an important jute-producing region. The soaking and washing of jute every autumn and winter causes severe pollution of water sources, making the water in the 1,100 km long system of 600 rivers as black as ink, and very smelly. The condition of the water is such that its chemical oxygen demand is zero. Wherever the polluted water goes, floating and bottom aquatic life such as fish, shrimp and snails die in great numbers. Over 800 state-run and individual contract fish ponds also are damaged by pollution, losing 700 thousand kg of fresh fish annually. Such lake district water plants as lotus and reeds also suffer misfortune.

In the past few years, severe pollution of the water has caused great losses for fishing, so that complications for fishing constantly occur. According to incomplete statistics, province-wide, direct losses due to acute deaths of fish caused by pollution annually are about 30 million yuan and the toxins the fish ingest also threaten the lives of the people.

For this reason, I urgently call on relevant departments to adopt decisive measures to prevent water pollution and safeguard the fisheries resources that are more in danger daily.

Wang Yangzu on Review of, Prospects for Environmental Protection

90WN0115A Beijing ZHONGGUO HUANJING BAO [CHINA ENVIRONMENTAL NEWS] in Chinese 17 Apr 90 p 2

[Speech by Wang Yangzu [3769 2254 4371], Deputy Director of the National Environmental Protection Bureau: "Dedicate to Environmental Management, Develop Control and Regulatory Capabilities—An Abstract of Comrade Wang Yangzu's Progress Report to the Fourth National Conference on Environmental Surveillance and Monitoring"]

[Text]

I. A Review of Environmental Surveillance and Monitoring Service in the Past 5 Years

Since the Third National Conference on Environmental Surveillance and Monitoring, held in Xining in October of 1984, the environmental surveillance and monitoring branch has enthusiastically followed the guideline of "improve on quality and persist on reform to further develop environmental surveillance and monitoring services into a new realm," steadfastly adhered to the course of devoting environmental surveillance and monitoring to the cause of environmental management, and made major progress in nearly every aspect of the service.

1. The Basic Organization of National Environmental Monitoring System In the beginning, we started by building an environmental surveillance and monitoring network designed to serve the needs of environmental controls. The environmental surveillance and monitoring organization has experienced rapid growth in the last 10 years or so. Presently, there are some 4,000 surveillance and monitoring stations of various types manned by over 70,000 devoted environmental surveillance and monitoring professionals. More importantly, this force is disposed in a network to meet the unique demands of environmental protection in China. To build the foundation, we established 64 primary surveillance and monitoring stations during the "Sixth 5-Year Plan" to form the backbone of our environmental surveillance and monitoring services; furthermore, during the "Seventh 5-Year Plan," tailoring to the geographic conditions of our administrative system and the regional characteristics and prevailing problems of environmental pollution, as well as following the policy of strengthening the outposts and the echeloned management system, we have completed a national environmental quality surveillance and monitoring network surrounding the China Environmental Surveillance and Monitoring Headquarters and composed of an air monitoring network of 72 stations, a surface-water monitoring network of 109 stations, an acid-rain monitoring network of 200 stations, a radioactivity monitoring network of 29 stations and a noise monitoring network of 52 stations. In addition, attention toward ecological monitoring has been growing; the central and local authorities have

joined hands and co-funded steppe, desert and marine monitoring networks as well; provinces, autonomous regions, municipalities and big cities have raised provincial and municipal surveillance and monitoring networks around their respective Provincial or Municipal Central Surveillance and Monitoring Stations to help regulate local environmental controls; specialized monitoring networks have been completed in succession by responsible departments, industries and water systems to monitor their individual control programs. It is noteworthy that all the aforementioned surveillance and monitoring networks are interlinked and able to work closely together; they form a closely woven environmental surveillance and monitoring information-exchange network and provide a solid organizational basis for the future development of our environmental surveillance and monitoring services.

Secondly, we were able to establish an efficient management system—with the "Five Reports" as the goal and the "Six Regulations" as the core policy—for environmental surveillance and monitoring. In the last decade, environmental surveillance and monitoring stations at every level have, under very difficult conditions, conducted comprehensive surveillance and monitoring on environmental qualities such as urban atmosphere, water systems, city noise and coastal waters. Great strides have been made in the depth and width of monitoring programs in the "Seventh 5-Year Plan." In addition to the tasks just discussed, many stations have extended their surveillance and monitoring services into other related fields such as biology, radioactivity, electromagnetic waves, quakes, stench odors and agriculture. Tens of millions of pieces of representative environmental quality data are collected every year. The current surveillance and monitoring system enables us to keep a close track of the present status of, as well as trends of future changes in, our environmental qualities.

Thirdly, our technical development with the "Wu Hua" [0063 0553 Five Modernizations?] as its main content has gradually come of age. Although the environmental surveillance and monitoring service had a late start in our country, because of the promotion of authorities in charge at every level and the dedication of professional staff in the service, great strides have been made in the technological field. Most admirable of all of their achievements is the pioneering of a technological approach uniquely adapted to environmental surveillance and monitoring missions in China, which is also one of the major goals put forth in the Third National Conference on Environmental Surveillance and Monitoring. Authorities plan to follow up this goal, step by step, with other modernization programs, including fully integrated networking of surveillance and monitoring stations, normalization of sampling outposts, standardization of analytic procedures, computerization of data processing and systemization of quality assurance.

2. Continued Upgrade in Surveillance and Monitoring Technology Levels

In many aspects, from the make-up of personnel to the professional competence of the staff, the technical arm of our environmental surveillance and monitoring force has undergone a profound transition in the last 5 years. The personnel of the surveillance and monitoring branch in the environmental protection service now number some 26,000; scientists and technicians constituting a great portion of the total, we may well boast a specialized and fully integrated surveillance and monitoring technical force with a high level of theoretical proficiency and much practical experience. In the last 5 years, many scientists and technicians from the surveillance and monitoring branch have taken part in several large-scale surveys and research of great significance to the nation; the results of their work have far-reaching effects on our national policies and economy. Members of our technical staff have formed the backbone of investigating teams conducting these studies and made great contributions.

3. Progress Gained in Environmental Surveillance and Monitoring, Growth in Environmental Regulatory Capabilities; Competence Level Is Continuing

Major progress has been made in basic technical fields, which helps materially strengthen our fundamental capabilities to assist the implementation of environmental regulatory tasks.

The scope of environmental surveillance and monitoring is growing constantly, making our service branch increasingly adaptable and responsive to the needs of environmental controls.

The efficiency in environmental surveillance and monitoring management has been steadily improving and more ways have become available to communicate the surveillance and monitoring results, thus helping the environmental control service focus on specific problems.

4. Experiments Conducted to Reform Scientific and Technological Organizations and to Improve Vitality and Cohesion of Surveillance and Monitoring Stations

Following the prevailing tide of the great reform in the national economic system, member stations of our surveillance and monitoring service at every level have enthusiastically, earnestly and deliberately conducted experiments to reform scientific and technological organizations in the last 5 years. Most of the stations have included creation of rationalized and harmonized working relationships, a well-defined functional and responsibility system and improvement of personnel and work qualities in their goals of reform and many of them have greatly benefited from their deep-reaching rectification programs. A recent survey shows that in the last 5 years, service charged from paying services rendered by stations to the society provided one-third of their operating expenses. The service compensation system, which reduces the financial burden of the central government, deserves broader public acceptance. In addition, this

system, through compensation services, enhances capabilities of surveillance and monitoring stations to work for our national economic development; it helps expand the positive influences that our member stations exert on society as well.

II. The Current Situation and Basic Tasks of Environmental Surveillance and Monitoring

1. Current Situation

to sum it up in one sentence, the current situation can be described as a mix of achievements with setbacks, yet full of challenges and opportunities. We can push the environmental surveillance and monitoring service in our country steadily forward only on the primary premise that each and every one of us in the service can fully comprehend the current situation, thoroughly analyze problems, never lose sight of our goals and adapt our mission plans to prevailing conditions.

2. General Goals and Policies for the Next 5 Years

Learning from our practical experience of the last 5 years and adapting to the changing demands of our designated tasks, we should have a guiding ideological doctrine to help us embrace new assignments; that is: to thoroughly carry out the principles of management reform, extend rectifications downward, consolidate gains and improve efficiencies, intensify regulatory activities, raise the environmental surveillance and monitoring service into a new realm and work for total environmental control with high-performance standards and efficiencies. Under the guidance of this doctrine, our goals for the next 5 years are: to perfect the environmental surveillance and monitoring system, grasp environmental qualities and changes in pollution sources timely and accurately, as well as assist in environmental control with high efficiency.

In order to ensure that the goals will be met, we should practice the policy of "consolidation and improvement." By consolidation, we mean to consolidate the progress gained and bring the positive effect of advancement in environmental surveillance and monitoring and related scientific research into full play; to consolidate our organizations, make the best use of organizational advantages that surveillance and monitoring stations are offering and to consolidate reform gains, that is, to continue the practice of proven and tried measures and procedures. By improvement, we mean to improve on the basis of consolidation. First of all, we need to improve the quality of personnel; secondly, to upgrade performance standards of surveillance and monitoring services, and thirdly, to improve the effectiveness of environmental surveillance and monitoring.

3. Fundamental Missions

a. Provide technical support and assistance for the implementation of the "Eight Regulations" of environmental control.

b. Step up monitoring activities on pollution sources to bring monitoring services.

c. Double the effort to develop the national environmental surveillance and monitoring network.

c. Intensify the drive to push forward research in surveillance and monitoring science and technology.

e. Consolidate the organization, improve the quality of personnel and spare no effort to upgrade performance standards in surveillance and monitoring tasks.

III. Major Measures To Be Implemented to Realize New Breakthroughs in Environmental Surveillance and Monitoring

1. Strengthen the Leadership of Environmental Regulatory Authorities at Every Level in Surveillance and Monitoring Matters

To strengthen the leadership of our patent service in surveillance and monitoring tasks, we should foremost of all upgrade the awareness of environmental regulatory authorities at every level of the importance of environmental surveillance and monitoring. For one thing, they must recognize the nature, position and functions of environmental surveillance and monitoring and realize the scientific management of the environment relies on the support of surveillance and monitoring. Secondly, they must fully comprehend the complexities of environmental surveillance and monitoring missions; that environmental surveillance and monitoring involves a great deal; that timing is very important in this field of work; and that environmental surveillance and monitoring services involve many disciplines of science, are society-oriented and demand total devotion in order to do a good job. Therefore, environmental regulatory authorities at every level ought to accord environmental surveillance and monitoring much attention, include surveillance and monitoring and related matters in the agenda at regular executive meetings as though the success of the entire environmental regulatory mission depended on them and actively partake in studying, planning and reviewing environmental surveillance and monitoring tasks.

2. Carry Organizational Reforms Downward, Improve Intra- and Inter-Unit Working Relationships and Raise Work Efficiency

It is imperative that we should never lose sight of the purposes and direction of the reform while plowing into the movement. To reform is not to start from scratch, it is not to deny everything, whether good or bad; the purpose of reform is to raise performance standards and the work efficiency of environmental surveillance and monitoring services and make even better use of our co-workers' dedication so as to achieve new breakthroughs in our endeavours. We feel very strongly that reforms should be directed at eliminating those working relationships that hinder the progress of our service, especially some habits and long-standing practices which

inevitably cause internal conflicts, are usually divisive and impede progress. First of all, we must start by rationalizing and harmonizing our work relationships and defining job functions and responsibilities well; the purpose is to develop an intra-station functionary structure that is centered on a goal-oriented responsibility system and a united inter-station network designed to promote work-sharing and coordination in the manner dictated by established network organizational regulations. To serve this end, we have instituted the "National Environmental Surveillance and Monitoring Network Administration Regulations" and welcome any constructive comments or suggestions you may have in implementing this set of regulations.

3. Intensify System Development, Improve Qualities and Efficiency Through Better Management

The basic guideline for system development is to make full use of the functions of surveillance and monitoring stations through efficient management and close cooperation; through smoothly operating mechanisms between stations of various levels in the same group, as well as between groups in the network; and through improvement of personnel quality to advance environmental surveillance and monitoring services into the realm of high-performance standards and efficiency. To fulfill prevailing demands of the development of environmental surveillance and monitoring, we have introduced a series of administrative laws, regulations and procedures derived from the "Six Regulations" and followed up with complementary regulatory rules. The implementation of these environmental surveillance and monitoring administrative laws and processing procedures, with the "Six Regulations" as the core, is considered no less a task than a fundamental structural development project of the physical organization of the environmental surveillance and monitoring system. The successful completion of this construction project will definitely exert a very positive effect on environmental surveillance and monitoring services in our nation.

4. Intensify Research Activities in Surveillance and Monitoring Sciences and Technologies, Strengthen the Driving Power of Environmental Surveillance and Monitoring Development

We should realize that research and development in environmental surveillance and monitoring science and technology is an integral part of research and development in the general environmental sciences. There are problems awaiting solutions in each and every link in monitoring points distribution methodology, sampling methodology, analytic methodology, data processing and general evaluation methodology. It is understood that it may take the combined effort of all the comrades on the environmental protection frontline to resolve these problems. However, I believe, essentially, the primary drive to search for answers to these questions still rests with the comrades working in the field of surveillance and monitoring; they have the first-hand understanding of the situation, thorough knowledge of what is involved

with the problem and the most urgent need to do so. From now on, we are going to adopt a promotion policy that encourages research subject discrimination by selective funding. We must not fail in our strive for excellence in research and development in the surveillance and monitoring sciences. Secondly, research projects should be overseen by an integrated plan and methodically carried out, step-by-step and stage-by-stage, whereas the planning should be based on prevailing conditions with goals reaching far into the future. Thirdly, researchers should select their study subjects rationally, with emphasis focused on overcoming technical hurdles and problems that are chronic or form bottlenecks to progress. Fourthly, much attention should be given to the allocation of research funding as well. We feel that most importantly, necessary funding must be secured to ensure the smooth execution of the proposed research for the implementation of the "Eight Regulations."

5. Create Favorable Growth Environment and Properly Resolve the General Funding Shortage Problem in Surveillance and Monitoring Programs

There are only two ways open to us. The first is to practice moneysaving measures in everything we do. We know that this has been already a common practice in many monitoring stations and should remain so. The second approach is not to waste and carefully manage available funds and spare no efforts to keep revenue channels open. Therefore, the following measures should be adopted: manage well and carefully budget collected pollution fees; actively and deliberately develop revenue-generating services; approve allotted job subsidies only if the situation merits; and strive to keep revenue channels open.

In conclusion, we'd like to ask environmental protection authorities at every level to be attentive to the requests of counterpart surveillance and monitoring stations; do your best to anticipate their needs and improve their work conditions and environment. We are aware that many of you have already done so and would like to ask for your continued support. We should all realize that not only does the development of environmental surveillance and monitoring rely on this kind of mutual assistance and cooperation, so does the future growth of environmental protection in general. The National Environmental Protection Bureau is resolved to build up its environmental surveillance and monitoring service arm. The decision has been made and we expect environmental protection agencies and departments at every level to carry out their duties.

Overall Environmental Protection Plan Promulgated in Shanghai

90WN0115B Beijing ZHONGGUO HUANJING BAO
[CHINA ENVIRONMENTAL NEWS] in Chinese
14 Apr 90 p 1

[Article by Zhao Guanliang [6392 7070 5328], reporter of CHINA ENVIRONMENTAL NEWS: "Overall Environmental Protection Plan Promulgated in Shanghai, 33 Environmental Laws To Be Introduced Before 1995]

[Text] The city of Shanghai is geared to introduce 33 city environmental protection laws before 1995.

Shanghai has already enacted 14 local antipollution laws. The implementation of these regulations and laws has exerted a positive effect in curtailing pollution and in improving qualities of local environments and, more fundamentally, it has remedied the evil of the past wherein no set rules can be followed.

The proposed framework for the environmental protection regulatory system and legislative planning submitted by the City Environmental Protection Bureau paints a picture showing that presently, the city is still lagging behind in environmental protection legislations; specifically, a basic environmental protection law, tailored to meet the unique requirements in this area—one which environmental administration can conform to—is yet to be introduced. In addition, the implementation of enacted environmental protection laws is hampered by a lack of established enforcement procedures. Moreover, inadequate overall planning in environmental protection legislation and the absence of a designated liaison office have resulted in poor coordination and agreement between express environmental protection laws and state and local laws as well as regulations adopted by other branches of the city government. Therefore, the early introduction of an integrated and complete set of environmental protection laws should be one of the cities' most important missions in improving environmental regulatory tasks.

A planning study, using forecast municipal demands on which is based the City Development Council's planning for future legislation in developing urban planning, construction and administration, and which takes the present situation as the starting point, has recently been completed. This study has drawn many an important lesson by evaluating nearly 200 domestic and foreign environmental protection laws and has made a detailed analysis of Shanghai's current needs, together with possible future development in environmental controls. Based on the lessons learned from this study and following the principles of timely legislation to meet the urgent demands and assumption that practical needs may match prevailing situations, overall planning for an environmental protection legislation system was gradually formulated. It was learned that the planned legislation system includes Environmental Protection Organizational Laws, Environmental Protection Statute Laws, Environmental Protection Procedural Laws and Standard Environmental Regulatory Laws, totalling 55 individual laws in four categories. This legislative planning also calls for including a group of 33 laws in the legislative agenda before 1995. The city government has given high marks to the proposed planning and has placed the 33 laws in its long-range plans.

Results of 32-City Environmental Investigation Published

90WN0115C Beijing RENMIN RIBAO in Chinese
24 Apr 90 p 2

[Article by RENMIN RIBAO correspondents Gu Hong-hong [7357 3763 3763] and Yang Zhaobo [2799 0340 3134]: "Environmental Protection Commission of the State Council Makes Its First Report on Results of General Evaluation on Municipal Environmental Control"]

[Text] Beijing, 23 April (XINHUA)—State Councilor Song Jian [1345 0256] presided over the 17th Commission Meeting of the Environmental Protection Commission of the State Council in Beijing today. This meeting discussed the results of quantitative evaluations of environmental control programs in the 32 cities reviewed by the state in 1989 and announced the lists of the top 16 cities excelling in, respectively, the environmental quality category, the pollution control category and the environmental construction category.

The urban environmental quantitative evaluation program is comprised of two tiers. Thirty-two cities—including the three municipalities of Beijing, Tianjin and Shanghai; the 26 capital cities of provinces and autonomous regions with the exception of Lhasa City, together with the cities of Guilin, Suzhou, and Dalian—have been directly evaluated by the national government. In the second tier of the program, the individual provincial people's government evaluates the cities under its jurisdiction. According to a partial counting, no less than 175 cities were evaluated in this program in 1989. The cities are graded in five categories: atmospheric environmental protection, aquatic environmental protection, noise control, solid waste treatment and urban greening projects; these comprise 20 subcategories.

Compared to 1988, 25 cities—or 78.1 percent of all 32 cities—significantly raised their total scores in six environmental quality indexes. Improvements were observed in other subcategories as well. The annual average index measuring the number of microparticles in the atmosphere per day declined in 19 cities and maintained at last year's levels in 11 cities; the percentage of drinking water sources that met regulatory water standards rose in 12 cities and stayed at the same level in 16 cities; chemical oxygen consumption in surface water was lowered in 12 cities and remained unchanged in 17 cities; average regional environmental noise indicators decreased in 22 cities and maintained at the same level in three cities; average traffic noise indicators along major urban thoroughfares dropped in 11 cities and remained unchanged in 14 cities.

At the meeting, commission members also received, from the National Environmental Protection Bureau, a report on implementing the decisions passed in the Third National Environmental Protection Conference and their top priority pollution-control tasks for 1990. The memorandum, "Suggestions From the Environmental Protection Commission of the State Council on Active Development of the Environmental Protection Industry" was also discussed and passed in the same session.

The top scoring cities in the evaluation are given below.

The top 16 cities in the urban environmental quality category are: Haikou, Yinchuan, Shijiazhuang, Dalian, Nanjing, Lanzhou, Wuhan, Hohhot, Nanchang, Changsha, Beijing, Guilin, Guiyang, Guangzhou, Tianjin and Urumqi.

The top 16 cities in the urban pollution control and environmental construction categories are: Dalian, Beijing, Hangzhou, Shenyang, Tianjin, Shanghai, Guangzhou, Changchun, Suzhou, Changsha, Hefei, Taiyuan, Wuhan, Haikou and Nanjing; Chengdu and Zhengzhou are tied for the 16th place.

INTER-ASIAN

Japanese, Thai Officials Discuss Environmental Cooperation

*BK1608162790 Bangkok Domestic Service in Thai
1200 GMT 15 Aug 90*

[Text] At 1130 at Government House, visiting Japanese parliamentarians (Takashi Keisichi and Kenichiro Sato) paid a courtesy call on Deputy Prime Minister Chuan Likphai. The Japanese parliamentarians said that as members of a Japanese environmental commission they wanted to forge cooperation among parliamentarians in Asian countries to tackle environmental problems existing in the countries in the region which have achieved marked economic development and progress, particularly Thailand, which has enjoyed considerable

economic growth and suffered environmental problems as a consequence. Japan has suffered from the same problem.

The deputy prime minister supported the idea of cooperation against environmental problems. He said the Thai Government is aware of the need to solve environmental problems, as evidenced in the national economic and social development plans. In the current plan, the government has pushed for solutions to environmental problems by trying to contain them and learn from the Japanese solutions. The deputy prime minister said a problem is that the people do not quite understand that remedial measures require large sums of money. The government is trying to educate the people on this matter.

INTRABLOC

Further on Bulgarian-Romanian Ecological Talks in Bucharest*AU1408152490 Sofia BTA in English 1344 GMT
14 Aug 90*

["Bulgaria, Romania Seek Solutions to Environment Problems"—BTA headline]

[Text] Sofia, August 14 (BTA)—The Grand National Assembly address in connection with the environment problems of the city of Ruse and other towns along the Danube was handed to the Parliament of Romania by a group of M.P.'s from Ruse.

The Bulgarian Parliament can expect a definite answer to this, its first international act, after September 1, until when the Romanian Parliament is in recess.

Meanwhile the Bulgarian parliamentarians have conferred with their Romanian counterparts and experts. They have agreed to the search for a solution to the ecological problems along the northern border and have set forth their positions on matters which they say are declined by the Bulgarian side. The Ruse-Giurgiu area and the Kozloduy Nuclear Power Plant were high on the agenda. The Romanian officials expressed the view that production on Working Areas Two and Three of the Giurgiu Chemical Combined Works can be resumed after an overhaul securing an environment-friendly operation (in the course of nine years the people of Ruse have been systematically gassed by that works). Romania did not object to an international expert examination. The Bulgarian M.P.'s believe that the best way to solve the problem is to move the plant [to] inland Romania.

Reports which have appeared in the press recently told that Romania wants a shutdown of the four small 250-Megawatt reactors of the Bulgarian nuclear power plant at Kozloduy until their safety is ascertained and that additional safety precautions be taken about the 1,000-Megawatt reactors under construction.

An official of the Power Generation Committee was quoted in today's OTECHESTVEN VESTNIK as saying that Bulgaria believes these demands are technologically unfounded. In his view the dispute can be settled by an international expert examination of the plant by experts of the International Atomic Energy Agency. "We have no reason to give up, and we can't give up a single reactor," he said.

This view is shared by a representative of the Green Party which in principle opposes nuclear power. Because of its infrastructure the Bulgarian economy would collapse without the Kozloduy Nuclear Power Plant, which generates 40 percent of the country's electricity. The Green Party sees a solution of the problem in the allocation of funds for improved safety and lower risks and, in a longer term, in efforts to reduce and probably phase out nuclear power. The representative of the party

claims that the radionuclides discharged into the atmosphere and into the Danube from the hot canal of the plant meet the internationally recognized safety standards.

The Green Party functionary said that Romania has no call to demand an end to the construction of nuclear power plants along its border because Romania itself has not given up its nuclear power industry. Chernobyl showed that irrespective of the whereabouts of the broken down reactor, a major accident jeopardizes the whole continent, the Green Party representative said.

Full information has been made available to Romania on radiation levels in Kozloduy and around the plant.

BULGARIA

Government Monthly Examines Air Pollution Problems**Protests, Response***90WN0215A Sofia NARODNI SUVETI in Bulgarian
Apr 90 pp 26-27*

[Article by Nedyalka Dimova: "Hurting for Dimitrovgrad"]

[Text] After a cry—the cry of Ruse—startled the totalitarian regime several years ago, the time came for us as well, in Dimitrovgrad, to cry out. However, no such sound was heard, perhaps because the dust falling on us does not irritate the throat so harshly as yellow-greenish chlorine.... Also, perhaps, the discontent of the people of Dimitrovgrad and isolated protests were met with the firm promises of the municipal party and state leadership that everything possible is being done to resolve the grave ecological problems, and because these problems were drowned in promises and programs of ministries and people's representatives and further resolutions and decrees, all of them "concerned" with our first socialist city. This city, born of the ideals of socialism and aware of this fact, was unwilling to voice its protest loudly.

The dam broke after 10 November 1989. There were protests, meetings, and appeals.... The population of Dimitrovgrad wanted to know the full truth about the city's ecology. This was also the topic of the session held by the municipal people's council on 23 December 1989. The sports hall, with a capacity of 1,500 persons, was packed by citizens who wanted to participate in the session. The only empty seats were...those of the 64 members of the council. Because of the lack of a quorum it became a general meeting. This was an unprecedented case in the entire history of the Dimitrovgrad municipal people's council! It is a case worthy of special comment. I shall not discuss it now but will merely add that another meeting of the municipal people's council was scheduled for 27 December, at which ecological problems were discussed and resolutions were passed.

Asking for the entire truth of Dimitrovgrad's ecology meant providing information concerning the type and amount of harmful components affecting the living environment and the diseases most frequently affecting the people of Dimitrovgrad, identifying the culprits for the present condition, and providing a solution.

Following are some facts and figures that describe the living environment in the city and the area: harmful concentrations of dust, from 300 to 500 percent and, in some cases, higher by a factor of 28 over the maximally admissible concentrations (MAC); sulfur dioxide, 2.3, with deviations ranging from 19 to 34; lead aerosols, 2.3; hydrogen sulfide, 2.3; hydrogen fluoride, 3.7; manganese in the drinking water, from 0.5 to 3.4 milligrams per liter, i.e., exceeding the admissible level by a factor of 34.

For a long time the city's leadership did not make public such data based on the studies conducted by the specialists, concerning the health situation of children and adults. However, anyone living under Dimitrovgrad's skies could clearly feel it because the people were "carrying it on their own backs." Following are some so-called confidential data that show that morbidity among children and adults for some diseases is several hundred percent above the national average. The diseases that most frequently afflict the small residents of Dimitrovgrad, children under 14 studied between 1980 and 1987, are the following: bronchial asthma, double the national average; anemias, tenfold higher; inflammations of the middle ear and skin, and subcutaneous infections, twofold; acute infections of the upper respiratory tract, 50-100-percent higher. What about adults? Acute infections of the upper respiratory tract, more than double; pneumonias, double; chronic bronchitis, more than 50-percent higher; anemias, quadruple; duodenal ulcers, quadruple; skin infections, higher by a factor of 2.6 ...

The reader is probably already asking the following: Has anything been done so far to improve the living environment in this 55,000-strong city, saturated with chemical, cement, and all other industries? We can clearly answer: Yes! A number of resolutions and decrees have been promulgated. We shall list all of them:

Council of Ministers Letter No. 168 of 1953 "On Building Landscaped Areas, Forest Areas, and Other, With a View to Compensating for and Reducing the Harmful Consequences of Industrial Activities in Dimitrovgrad."

Resolution No. 265 of the Council of Ministers Bureau, dated 17 July 1972, "On Improving the Hygienic Condition of Dimitrovgrad and Reducing Atmospheric Pollution for the 1972-75 Period."

Program for the Preservation of the Environment in the Dimitrovgrad Area, dated 22 September 1977, ratified by the Council of Ministers.

Resolution No. 11 of the Council of Ministers Bureau, dated 20 January 1977, "On Tapping the Dust Released by Cement Plants in the Country," with a section dealing with the Vulkan State Cement Plant in Dimitrovgrad.

Resolution No. 48 of the Council of Ministers Bureau, dated 19 March 1981, "On the Accelerated Socioeconomic Development of the Dimitrovgrad Settlement System During the Eighth Five-Year Plan and Through 1990."

Council of Ministers Letter No. 18, dated 20 June 1988, "On Accelerating the Reconstruction and Expansion of the Maritsa-3 Thermoelectric Power Plant in Dimitrovgrad and Improving the Ecological Situation."

Resolution No. 70 of the Council of Ministers of 22 May 1989 "On Improving the Condition of the Environment in Dimitrovgrad."

For the sake of the truth, we must say that these government documents indeed solve some major problems of Dimitrovgrad and its area. However, the main pollutants that surround the city from the east and the west remained: the Vulkan Cement Plant, the Maritsa-3 Thermoelectric Power Plant, the Chemical Combine, and so forth. Breakdowns in the physically worn-out equipment increased drastically, and the pollution of the environment showed durable increases....

The report of the executive committee of the municipal people's council, submitted on 23 December 1989, indicated the culprits for the unresolved ecological problems of Dimitrovgrad: "The following are to be blamed for the situation: the former Ministry of Construction and Construction Materials, the Ministry of Power Industry, the Ministry of Chemical Industry, the Ministry of Transportation, the National Agrarian-Industrial Union... and, naturally, the insufficient insistence of the municipal leaderships."

However categorical they may be, these explanations are no longer sufficient, given the climate of the times. Civic and human tolerance shown by the people of Dimitrovgrad concerning unsolved ecological problems has reached a critical mark. Oversaturated by promises, programs, and resolutions, the people find it difficult to find a satisfactory answer to the question of, what now? Nonetheless, everyone is persistently seeking answers.

The expectations and hopes today are related to the actions of the National Assembly. A representative group from Dimitrovgrad recently delivered personally to its chairman, Stanko Todorov, "Proposal Submitted by the Dimitrovgrad Municipal People's Council, Petition and Declaration of the Coordination Council on Preventive Measures for the Immediate Resolution of Dimitrovgrad's Ecological Problems." The main demands included in these documents call for declaring the city a settlement with a catastrophic ecological condition, closing down obsolete and health-harming production facilities, showing concern for the preservation of the people's health, and surmounting the consequences of the ecological pollution of the city and the area.

These demands were heard!

Vratsa's Troubles Traced

90WN0215B Sofia NARODNI SUVETI in Bulgarian
May 90 pp 42-43

[Article by Karolina Kraeva: "The Knot Is Tightening"]

[Text] In the past, the people of Vratsa probably had a good life: They drank clean water, ate nitrate-free vegetables, and breathed clean air. They dreamed of huge plants and nuclear electric power stations. The time came to start building them, and, when the smokestacks started working, the eyes of the people were shining with joy.

Today's Vratsa population, unfamiliar with this enthusiasm, has huge plants and, not far from them, a huge electric power station. Today, however, they dream of clean air over their city.

Somewhere down the road something very important was ignored, something that is now difficult to correct. The chemical combine is half a kilometer outside the city, although it is required for such a facility to be located at least three km from any settlement. In the past, the people of Vratsa were pleased also by the first cement produced by the nearby plant; today both they and the people of Beli Izvor are breathing dust in concentrations double or triple the admissible levels. The array of difficulties does not end there: Currently the Rodopa Meat Combine is under construction. It does not have a deodorizing installation and an incinerator; some managers intend to convert the old enterprise, located within the city limits, into a poultry factory. Nothing has been done to improve the safety of the obsolete chlorine production facility of the Vratitsa Company, and the communal activity of the municipality is in an unenviable condition.

Vratsa has frequently seen the dawn of a new day under a blanket of ammonia. With each blast of gas contamination, the sharp smell makes breathing difficult. This "contribution" is made by the Khimko Company. For a number of years the company has justified such omissions with "objective" reasons. It is true that the technology of this production process calls for a certain amount of ammonia to be released into the air. Usually, however, its concentration in the air is several-hundred-percent higher than the stipulated standards. This is confirmed by the reports of the city's Hygiene-Epidemiological Institute. Also confirming the critical ecological condition in Vratsa are a number of investigations made by task forces of the former State Committee for Preservation of the Environment. Recently, after another release of gas, the management of the Khimko Company admitted that it was the result of a mistake made in loading the railroad tankers. For one and a half hours, a high concentration of ammonia appeared over the city, for a very simple reason: failure to place a telephone call. Inevitably, the question arose: Why were funds not set aside to install, some time ago,

an appliance that would give a signal and thus prevent the danger of gasification of the area while railroad tankers are being filled?

A solution to this problem already exists. But what is the guarantee that somewhere else there will not be another error and that the city will not be poisoned once again? All too many promises the company's management has made to the citizens of Vratsa have remained unfulfilled.

Air pollution in the city is not the only trouble. The pollution of the two rivers flowing in the area—the Leva and the Dubnika—exceeds, as a result of the chemical output, the permissible standard by a factor of 25. For many years the sewage system of the Khimko Company has been in a pitiful condition, and no one can safely establish where the wastewater is draining. All that is known is that ammonia has been detected in the samples taken in the Kobilyak and Krapeshko Ezero water supply areas, which supply the drinking water. Something else that needs no comment: The vegetation along the banks of the Dubnika River is gray and drooping, as though it has never been alive.

What could be expected in the future, considering that the reliability of the equipment used by the Khimko Company is increasingly worsening? This equipment has been used for 21 years. Are all roads already blocked? Following is the opinion of Rositsa Dolmova, chief specialist in landscaping and preservation of the environment of the Vratsa Municipal People's Council: "The Khimko Company must finally build a water-treatment station. For a number of years, however, its management has been dragging its feet on this matter. This project has been included in a variety of lists and schedules, and the sluggishness is being justified by citing problems of designing, bids, and search for the most efficient technology. This has lasted for more than 10 years. The situation with air pollution is even worse. The bottom line is that the pollution of the atmosphere far exceeds permissible standards. However, this information is not pedantically accurate because only six of many indicators are being watched. Yet one should take into consideration the comprehensive influence of pollutants on the population's health."

Let me add other suggestions to this. It is obvious that the activities of the Khimko Company cannot be stopped because they affect our country's economic interests. However, the equipment of the chemical industry in Vratsa is becoming obsolete, both morally and physically, for which reason the planned assignments of the company should be reduced so that the collective could extend the time needed for the regular annual capital repairs and take a close look at the systems and installations. This would make it possible to eliminate frequently skipped so-called bottlenecks (due to the difficulty of repairs). Furthermore, the company's leadership did have and perhaps still has resolutions passed on the study of the production of chemicals that harm the ecology—methanol and trichlorosilane. The opinion of the municipal people's council and the

Hygiene-Epidemiological Institute in Vratsa and that of the Rayon Environmental Protection Inspectorate (RIOPS) is that Khimko should stop designing and building new capacities and production lines, with the exception of those that do not worsen the area's ecological situation.

This year, as well, Vratsa was unable to get rid of the Beli Izvor cement that falls on the city. I have in my hands an old and worn-out file with programs, information, promises, prohibitions, and...compromises. This reads like a chronicle of a true long-lasting paper war. The "apple of discord" is the electric filter of the fifth technological line of the Beloizvorski Tsiment Company, which cannot fulfill its functions of tapping the dust and which is causing severe ecological problems in the area. For that reason, every day some 12 tons of dust are released in the air, and sometimes its concentration is higher than standard by a factor of 15-20.

Two years ago a compromise was accepted, at the expense of the health of the population in the Vratsa area, by the former State Environmental Protection Committee (DKOOS), which extended (one more time) the deadline for replacing the electric filter to 31 December 1989. However, even after that date nothing changed. It is true that the company has signed a contract with the Main Administration of Construction Troops in Sofia for the installation of such equipment, which, however, as planned, will take at least...three years.

On 5 January 1990, as a result of repeated demands made by the public and the mass information media, the ROPS in Vratsa stopped the fifth technological line. This happy news was reported at the session of the municipal people's council, which was held that same day. Only three days later, however, by permission of the DKOOS, the line was back in operation....

Once upon a time, when the Vratsa people were building their industry, they asked for the pig iron casting combine to be located at a greater distance from the city, for which reason they chose a site in a village near Mezdra. The then Ministry of Machine Building, however, did not approve their choice, for which reason the combine was built on the city's outskirts, where the Lyutibrodski housing complex was later built as well.

Something else was promised to the people of Vratsa—that they would be given modern equipment. Subsequently, it turned out that there was no foreign currency available. Therefore, the pig iron was cast in two blast furnaces without treatment systems. Today the combine has signed a contract with the GDR for the technical resolution of the problem. However, it lacks sufficient funds for its implementation. The collective hopes that such funds will be provided by the state budget. For the time being, the people of Vratsa can only hope that the northern wind does not blow because then it becomes difficult to tolerate the tart taste of metal....

Yet another losing ticket could be drawn from this ecological basket. It is described by Engineer Draganinski, commission chairman at the municipal people's council:

On several occasions we have raised the question of building a deodorizing system and an incinerator at the new meat combine. Its construction was started at the end of the 1970s, after it had been resolved that the plant in Murchevo would undertake the processing of the bones and the carcasses. Today this is no longer possible, for which reason the competent authorities should assign an area for the incinerator. It would be good for the designing to be completed in 1991 and the building by 1994. But what will happen until then? Until then both the bones and the carcasses will have to be buried in the ground. As if these problems were not enough, someone decided for the old meat combine to be converted into a poultry factory. It is easy to imagine what a poultry factory in the middle of the city means!

Obviously, no overall lesson has been learned from past failures. The municipal people's council is also partially to blame. This was most clearly expressed by Kiril Penchev, chairman of the Standing Commission for the Preservation and Reproduction of the Environment:

The municipal leadership is making compromises with the violators of the ecological situation because of some services these companies and enterprises provide to the municipality. This makes it even clearer why the ecological knot is becoming increasingly tighter....

Parliamentary, Public Debate on Pollution Problems

*AU1008123890 Sofia BTA in English 0819 GMT
10 Aug 90*

["Environment Problems: Any Way Out?"—BTA headline]

[Text] Sofia, August 10 (BTA)—After debating the matter at two sittings, parliament failed to adopt a decision on the Topolnitsa Dam, whose waters are seriously contaminated with arsenic. The Ministry of the Environment announced a national competition to cope with the problems of the dam.

Today's TRUD quotes an M.P. as telling the Grand National Assembly that if the non-ferrous metal works in the town of Srednogie, which is the main polluter of the dam, goes out of business, some 2,500 people will lose their jobs. Pollution has reached a critical point not just in Srednogie but also around the towns of Plovdiv, Kurdzhali and Pernik, as a result of decades of misguided technological and economic operations and underrating the hazardous industrial wastes which poison the air, the water and the soil, TRUD points out.

While the M.P.'s are debating the Topolnitsa problem, the local branch of Ecoglasnost in the town of Silistra on the Danube protests against the government's decision

to build a cellulose works in the municipality. The Ecoglasnost Association approached the Supreme Court with a request to overrule this decision, but the Supreme Court turned down the request, saying that the Ecoglasnost protest is premature. The environmentalists, however, believe that two flagrant violations have not been taken into account: The local council has not given its consent, and no site has been fixed for the construction of the works.

Today's SVOBODEN NAROD reports the condition of some Bulgarian rivers. The Tundzha River, which passes through the towns of Kazanluk, Sliven and Yambol, receives the industrial effluents and household waste water of these population centers, and waste treatment plants do not function everywhere. The chemical combined works in the town of Stara Zagora pollutes the nearby rivers Bedechka and Sazliyka. Last year the works were fined over 17,000 leva but, as the paper observes, no Bulgarian enterprise has been daunted so far by the pollution fines it pays.

Parliament Resolution on Topolnitsa Reservoir

*AU1008145890 Sofia BTA in English 1337 GMT
10 Aug 90*

[Text] Sofia, August 10 (BTA)—The critical situation of the Topolnitsa Dam, the water of which is polluted by the Georgi Damyanov Copper Works with arsenic compounds exceeding the admissible concentration, was the second problem on which the Grand National Assembly has taken a stand.

Posed by the opposition and supported by the M.P.'s of the Bulgarian Socialist Party, this problem has been on the agenda of the parliamentary sittings for three days. Besides the high arsenic content, there is the danger of the dam's spilling over and contaminating the soil and the water sources in other regions, too. Before the problem was sharply posed by the Ecoglasnost Independent Movement, the water of the dam was used for irrigation, mixed with the clean water of another dam. Until 1986 the irrigation waters contained 0.4-0.5 mg/l [milligrams per liter] arsenic. After 1986 the standard of the CMEA [CEMA] member-countries was adopted which is 0.2 mg/l. The FAO standard is 0.1 mg/l.

Today the Grand National Assembly made a decision binding the Georgi Damyanov Copper Works to stop tapping out its waste waters into the dam until they are cleaned down to the admissible concentration of 0.2 mg/l arsenic. The Council of Ministers was assigned the task to refer to the specialized institutions of the European Communities, asking them for technical and financial aid in view of the improvement and control of the situation in the area around the copper works. The officials responsible for the present situation will be taken to task by the prosecuting magistracy.

Public Health Minister Ivan Chernozemski announced today that 2,400 children had been examined and there already are some data showing their health is harmed.

The Georgi Damyanov Copper Works was commissioned in 1958. It is the main producer of electrolytic copper and sulphuric acid in the country. Since then decisions about the ecologization of the production have been repeatedly made, but the implementation of none was brought to the end.

CZECHOSLOVAKIA

CSFR Air Pollution During 1985-88 Period Detailed

*90WN0200A Prague STATISTIKA in Czech
May 90 pp 226-230*

[Article by Miroslava Brchanova, attorney, Federal Office of Statistics: "Air Pollution in the CSFR 1985-88"]

[Text] The condition of the air in the CSFR is the result of the effects of emissions from sources within the CSFR and abroad.

The transmission of sulfur from sources located in the German Federal Republic and Austria is dropping due to the emission reduction in those countries. "Import" from Poland, the German Democratic Republic, and Hungary has remained unchanged or, to the contrary, is increasing. "Export" from the CSFR is also considerable (see Map 1 of the supplement). This, too is demonstrated by the CSFR's standing in a summary of the ten European countries with the greatest volume of sulfur dioxide emissions in 1987, and the reduction of emissions they have attained (Table 2 of the supplement); the CSFR is second only to the GDR.

The CSFR ranks among the countries that have highly polluted air. An analysis of the development of emissions from major pollution sources (over five MW of output—so-called REZZO I¹) from 1985 to 1988 shows that pollution from basic kinds of emitted pollutants—sulfur dioxide, carbon monoxide, and hydrocarbons—is stagnating, or possibly dropping slightly (see Table 1 of the supplement), but the general level of pollution per sq. km. is high. The only significant drop in emissions was in solid particulates (from 976.4 thousand tons in 1985 to 752.3 thousand tons in 1988). There was a partial increase in nitrogen oxides (from 874.8 thousand tons in 1985 to 880.6 thousand tons in 1988).

The lower emissions of sulfur dioxide, solid substances, and carbon monoxide in 1988 were probably due to the mild winters of 1987/88 and 1988/89, and in connection with them, the lower rate of combustion processes.

When comparing the number of pollutants and the annual fees for pollution emitted into the air for 1985-1988 (the system of fees was made possible by Law No. 35/1967 Sb.), there is a drop in the number of enterprises that pay fees in the CSR and an increase in the SSR.

The amount of fees paid, calculated per polluter, dropped slightly in the CSR and increased in the SSR.

Table 1

Indicator	CSFR				CSR				SSR			
	1985	1986	1987	1988	1985	1986	1987	1988	1985	1986	1987	1988
Number of polluters	1278	1250	1214	1186	961	953	912	867	317	297	302	319
Annual fees total (in 1000 Kcs)	224,768	210,931	201,276	215,132	190,918	180,562	163,080	165,014	33,850	30,369	38,195	50,118
Annual fee per polluter (in 1000 Kcs)	176	169	166	181	199	188	179	190	107	102	127	157

The impact of the polluted air on the ecosystem in our country is increasing. This is also documented by the data on forests negatively affected by emissions. Of the total of forests studied, more than 30 percent of the forests in Slovakia, and more than 50 percent of the forests in the CSR have been damaged.

Table 2

Indicator	CSFR			
	1986	1987	1988	1989
Area of forests damaged by emissions (in thou. ha)	1,859.6	1,905.5	1,821.3	1,933.1
Percentage of total damage	44.5	45.9	43.9	46.5

The emission load on our territory is considerable. This is also confirmed by data from the forecasting and signal system for air pollution for 1988.²

During a 24-hour average of the forecasting and signal system for air pollution the *warning* signal, indicating that the limit of SO₂ had been exceeded, was sounded six times during 144 hours in Prague, once during 24 hours in Brno, five times during 80 hours in the western portion of Northern Bohemia, and six times during 94 hours in the eastern portion of Northern Bohemia. The *regulatory precautions* signal (a higher danger level) was sounded ten times during 145 hours in the western portion of Northern Bohemia, and twice in 22 hours in the eastern portion.

Comparing the individual regions is difficult, since the conditions for sounding the individual danger levels vary from region to region (e.g., the limiting value for a *warning* signal is 250 µg/m³ SO₂ in Prague, and 200 µg/m³ SO₂ in Bratislava). Nevertheless, it is obvious that the worst conditions are to be found in Northern Bohemia and in Prague.

The poor condition of the air in Prague is also documented by data on emissions at selected locations in Prague (see Table 3 of the supplement). In these locations the highest permissible concentrations within a 24-hour average were exceeded; deviations during individual years were due to the meteorological conditions, changes in traffic around stations, and possibly construction work.

Table 3
Share of the Total Investment in Labor and Supplies for Environmental Protection, in percent

		1986	1987	1988
Projects to preserve the purity of water	CSFR	49.7	50.0	52.5
	CSR	47.2	48.5	51.9
	SSR	54.6	52.6	53.6
Projects to preserve the purity of air	CSFR	17.8	19.3	15.8
	CSR	23.3	25.8	18.7
	SSR	6.8	7.6	10.2
Projects to utilize or eliminate waste	CSFR	18.2	20.1	18.7
	CSR	18.7	20.6	17.9
	SSR	17.4	19.2	20.2

From 1986 to 1988 a total amount of Kcs1,944 million was spent on investment in projects to protect against air pollution in the CSFR. These expenses include investment in labor and supplies for projects that were included in the State Ecological Program of the eighth five-year plan and the total volume for the CSFR was Kcs341 million; of this, 242 million were spent in the CSR and 99 million in the SSR.

The data on pH (acidity) deposits obtained from so-called "background stations"³ of regional importance on the Chopok and Svratouch in 1988 provide us with information on the negatively affected area of the CSFR.

Table 3 [as published]

	Svratouch	Chopok	Bratislava
Annual Øg pH	4.29	4.3	4.6
Maximum pH	3.5	3.9	4.1

As a comparison, the pH in table vinegar (eight percent) is approx. equal to three and the pH in salad dressing is between 4.0 and 4.5.

The data from Bratislava is also interesting because it shows better values than the background stations during the given period.

The effects of the polluted air and its consequences have often been published. They are reflected in the state of

the ecosystem, the health of the citizens, the condition of buildings and structures, and they have social, economic, and political consequences.

The present state is untenable, both from the point of view of domestic problems and damage, and from the point of view of international obligations. To fulfill the obligation to decrease the sulfur dioxide emissions by 30 percent by 1993 (or 1995), it is necessary to intensify the trend toward decreasing sulfur dioxide emissions

(1980—3,100 thou. t SO₂; 1985—3,150 thou. t SO₂; 1986—3,022 thou. t SO₂; 1987 2,900 thou. t SO₂)—Source EMEP.

In the context of international obligations, it is also necessary to stop the increase in nitrogen oxides emissions.

Supplement

Table 1
The Development of the Level of Air Pollution (according to the type of pollution in thou. t)

Indicator	CSFR				CSR				SSR			
	1985	1986	1987	1988	1985	1986	1987	1988	1985	1986	1987	1988
Solid particulates	976.4	956.5	910.2	752.3	714.6	688.3	650.4	540.2	261.8	268.2	259.8	212.1
Sulfur dioxide	2,375.4	2,372.0	2,373.4	2,268.8	1,879.5	1,889.3	1,881.8	1,783.9	495.9	482.7	491.6	484.9
Nitrogen oxides	874.8	872.8	835.1	880.6	713.7	712.7	678.8	720.4	161.1	160.1	156.3	160.2
Carbon monoxide	151.8	138.8	136.6	133.8	112.6	101.7	100.0	98.8	39.2	37.1	36.6	35.0
Hydrocarbons	30.8	30.5	29.3	28.2	23.9	23.4	23.1	22.6	6.9	7.1	6.2	5.6

Table 2
The Rank of European Countries With the Highest Sulfur Dioxide Emissions in 1987, and the Decrease in Emissions Attained (thou. t x r⁻¹)

Rank	Country	1980	1987	Decrease 1987/1980		Specific Territ. Emiss.		Specific Indiv. Emiss.	
				absolute	in percent	t/km ²	rank	kg/citizen	rank
1	USSR (Eur. part)	12,800	10,200	2,600	20	3	9	0.6	10
2	GDR	5,000	5,000	0	0	46.3	1	299	1
3	Poland	4,100	4,540	increase	—	14.5	5	129	4
4	Great Britain	4,670	3,680	990	21	15.1	4	66	6
5	Spain	3,250	3,162	88	3	6.3	8	84	5
6	CSFR	3,100	2,900	200	6	22.7	2	190	2
7	Italy	3,800	2,504	1,296	34	8.3	6	44	7
8	FRG	3,200	2,044	1,156	36	8.2	7	34	8
9	France	3,558	1,518	2,040	57	2.8	10	28	9
10	Hungary	1,634	1,420	214	13	15.3	3	133	3

Table 3
Data on Emissions for 1986 to 1988 at Selected Prague Locations (lgmg x m⁻³)

Indicator		Rytirska			Dimitrovo nam.		
		1986	1987	1988	1986	1987	1988
Sulfur dioxide (SO ₂)	annual average	161	133	71	95	63	45
	maximum	614	959	349	521	854	230
	percent excess	35.4	25.2	38	6.3	3.8	9
airborne dust	annual average	83	138	56	63	114	—

Table 3
Data on Emissions for 1986 to 1988 at Selected Prague Locations ($\text{Igm} \times \text{m}^{-3}$)
(Continued)

Indicator		Rytirska			Dimitrovo nam.		
		1986	1987	1988	1986	1987	1988
	maximum	395	520	192	240	497	—
	percent excess	3.3	4.9	1	1.9	6.0	—
nitrogen oxides (NO_x)	annual average	88	82	49	85	77	—
	maximum	438	293	220	434	304	—
	percent excess	17.8	14.8	23	8.0	11.0	—
Indicator		Podebradska			Srobarova		
		1986	1987	1988	1986	1987	1988
Sulfur dioxide (SO_2)	annual average	97	88	83	87	87	63
	maximum	613	829	292	467	532	198
	percent excess	12.0	7.5	8	8.2	9.6	9
airborne dust	annual average	89	185	—	98	80	63
	maximum	702	516	—	302	444	182
	percent excess	42.2	35.4	—	8.8	5.8	4
nitrogen oxides (NO_x)	annual average	133	54	47	55	71	60
	maximum	642	432	126	217	254	198
	percent excess	40.6	4.7	2	8.0	10.1	20

Note: The highest permissible concentration—NPK: SO_2 per day— $150 \mu \text{g} \times \text{m}^{-3}$ airborne dust per day— $150 \mu \text{g} \times \text{m}^{-3}$ NO_x per day— $100 \mu \text{g} \times \text{m}^{-3}$ percent exceedance—the amount of measurement from the total amount of the sample that exceeded NPK.

Footnotes

1. REZZO—Register of Emissions and Sources of Air Pollution REZZO I—Emissions from facilities to burn fuels with heat output of 5MW or more (e.g., the Melnik electrical power plant, Komorany heating plant, etc.).

2. Operational code of the forecasting and signal system for the state of air pollution under unfavorable meteorological conditions in the region of the capital city, Prague (Bulletin of the MLVD CSR Part I/1988 File No. 1539/OOPP/88 with validity from 10 January 1989).

3. A background station is a station in a selected location which should not be influenced by pollution from local sources.

Ecological Program for Czechoslovakia Proposed 90WN0055A Prague MODERNI RIZENI in Czech Mar 90 pp 82-87

[Article for CTK by Eng. Jan Zeman Central National Economic Research Institute, Prague: "The Environment: Ecological Program for Czechoslovakia"] txt

[Text] The solution for the acute ecological problems in Czechoslovakia demand a radical change both in permanent decisions and in the system of planned management. The restructuring of the economic mechanism and the proposed structural changes should be combined with the ecological program, i.e., with implementing trends toward protecting and improving the state of the six natural environmental elements—air, water, soil, plant and animal life, topography, and bed rock. Here we will attempt to outline the systemic portion of Czechoslovakia's ecological program—the system of planned management for the introduction of ecological protection in the CSSR.

In my opinion this system should encompass the following:

In the Sector of Organizational Safeguards for the Ecological Protection Process

1. The CNR [Czech National Council] Law of 10 December 1989 largely fulfilled the task of establishing national commissions for ecological protection in the CSSR. The CSR [Czech Socialist Republic] Ministry of the Environment, established at the expense of the

former coordinating organizations, was assigned responsibility for coordinating environmental protection, protection of the air, water management, protection of nature, land planning and building regulations, the Czech Technological Inspectorate of Air Protection, the Czech Water Management Inspectorate, the Czech Hydrometeorological Institute, and recently it took over the coordination of waste disposal. The law reestablishes the CSR Government Council for the Environment. It will come into force on 1 January 1990.

This was very radical intervention into the management structure of environmental protection in the CSR. It substantially limited the so-called coordination organization system of protecting individual elements of the environment, which was incomplete, dispersed, and necessarily subject to special interests. It is one of the basic prerequisites to attain a true reversal in the sphere of environmental protection in the CSR.

However, some of the defects embodied in the Law must not be overlooked. It has left the protection of agricultural and forest soil, including the supervision of its economical utilization, in the hands of the former coordinating organizations, despite the fact that the agricultural department's past record is disastrous, and the forest management's past record also has serious deficiencies. Similarly, the problems of noise and vibration have remained in the hands of the former coordinating organization—hygiene. Another arguable point is the fact that water management (with the exception of the Czech Water Management Inspectorate), land planning, and building regulations have been combined with the Ministry of the Environment, since this means that it will be controlling itself to a certain extent. Prior to 17 November this alternative was unfeasible, since it was impossible to control the central and local bureaucracies. The radical democratization of Czechoslovak society has substantially increased control over them. Nevertheless, I would not underestimate the consequences of conflicting interests. Apart from the above-mentioned areas, the problem of the headquarters of the national committees' ecological departments has remained unresolved, as has the overall protection of nature. It is expected that a committee for the environment will be established in the SSR [Slovak Socialist Republic]. There will be no resolution on the federal level in the foreseeable future.

2. On the one hand, an office should be established, within the framework of national commissions for ecological protection, to fight pollution, which would include protection of the air, protection of water resources, which would fight noise, vibration, and electromagnetic radiation, as well as provide an irrefragable method of disposing of solid waste, and on the other hand, an office for the overall protection of nature, which would include environmental protection of agriculture, forestry, construction, the headquarters of the ecology departments of the national committees, and special protection of nature.

3. The coordinating organization for nuclear safety—The Czechoslovak Atomic Energy Commission—should retain the authority it had previously, but it should be subordinate to the government of the CSSR.

4. The authority of the individual ecological coordinating organizations, respectively the national ecological commissions, should be increased approximately to the level of the Czechoslovak Atomic Energy Commission in appropriate areas, i.e., ranging from control of developmental concepts, individual projects, their realization, their implementation, through to the ecologically irrefragable disposal of components once they have served their purpose.

5. The ecological departments of national committees should be responsible for implementing environmental protection in regional and territorial planning, including issuing permits for activities relating to ecological protection.

6. The authority of the national committees' general assemblies to appoint or dismiss the health officer should be revoked. A system in which the National Council, respectively the Federal Assembly, will appoint the Okres health officer on the recommendation of the Kraj health officer who, in turn, will be appointed on the recommendation of the Chief Health Officer should be introduced.

7. A unified ecological inspectorate with the authority to impose fines, instigate correctional measures, and suggest a suspension or termination of activities that, in the long term, violate the valid legal code, and/or valid ecological standards should be created as an integral part of the national commissions for ecological protection. The unified ecological inspectorate should cover the whole sector of ecology with the exception of nuclear safety and the health and hygiene service, both of which should remain independent.

8. As an integral part of the national commissions for ecological protection, expertise on the subject of ecological protection should be compiled, and larger and controversial construction should be subjected to it.

In the Sector of Legal Safeguards for the Ecological Protection Process

1. A citizen's right to live in a high-quality environment should be included in the new constitution, and all state agencies, enterprises, budgetary, subsidy, and social organizations, as well as citizens should be obligated to care for and protect the environment.

2. The adoption of a unified law on the environment should be speeded up. It should be based on the draft by Z. Maddar and his colleagues from the State and Law Institute of the CSAV [Czechoslovak Academy of Sciences] of October 1989. Other changes in the legislature on the ecology should be considered.

3. Responsibility for any threat to the environment, punishable under criminal law if ignored, should be

introduced. Serious damage to the environment should automatically be considered to be a criminal offence against the general public, and the punishment should be unconditional imprisonment.

4. Law No. 35/1967 Sb. [Collection of CSSR Laws] on measures against air pollution should be thoroughly amended. The following should be considered to be polluters: All sources that pollute the air through material or energy waste, i.e. sources listed in the information system REZZO I, II, III, and IV; sources that have not been listed, including smokers of tobacco products; sources of radioactive and electromagnetic radiation; excessive noise or vibration, and waste heat. The coordinating organizations of air protection should be given the authority to suggest the specification and precise definition of standards or limits for technical and economic (for specific sources), and territorial (for individual areas) air pollution, which should become laws after ratification by parliament, and the activities of entities that do not abide by them should be terminated on this basis. The draft by the MLVHaDP [Ministry of Forestry and Water Management and the Ministry of Forests and the Lumber Industry], dating from the beginning of 1989, should be changed, and the authority to determine limits for pollution from traffic should be granted to the coordinating organization for air protection and not to the FMDS [Federal Ministry of Transport and Communication] with the intent of broadening the definition of an air polluter, and the authority to impose fines should be transferred to the Inspectorate, i.e., it should not be granted to the national committees. This should be adopted quickly.

5. The law on solid waste should be adopted. Waste should be defined more realistically and evaluated as a potential source of raw materials and as the cause of damage to the environment, in the first place, the obligation to prevent its creation should be introduced, also the obligation to use it, or offer it for use, and only as a last resort should it be stored in such a way as to render it harmless. The obligation to document and classify waste should be introduced. The law on waste should establish a waste inspectorate, and permit the inspectors automatically to impose fines on enterprises and the employees responsible. The CSR Government draft of 18 April 1989 respects most of these principles. It should not assign the coordination of metal waste disposal to the FMHSE, but to the coordinator of waste disposal. It should also establish inspectorates that should impose fines on the employees responsible, and not only on the enterprises. The law should be passed soon.

6. Law No. 53/1966 Sb. in the version of Law No. 75/1976 Sb. on the protection of agricultural land resources should be thoroughly revised. The provisions on managing annexation and on taxes on annexation of agricultural land should be transferred from it to the Law on Agricultural Land. In particular, provisions such as the obligation to expand agricultural land resources, expand plowed land at the expense of fields and

meadows, bring other land under cultivation, use agricultural land resources to the maximum, etc., should be omitted. The law should see agricultural land as a sum of its production and extra-production functions. To attain this objective, it should prohibit substitute recultivation, the straightening of water courses, destruction of dispersed green belt areas, plowing away the balks, plowing land with a grade over 12 percent, dewatering mountain, foothill, and protected areas of all kinds. It should set rational limits to reclamation of soil, and withdraw from the agricultural agencies the right to force agricultural enterprises to make reclaim soil. In the same spirit, it should also revise related regulations, particularly the FMZV [Federal Ministry of Food and Agriculture] Ruling No. 36/1987 Sb. and the Statute of State Resources for Cultivating Virgin Land.

7. The Law on State Protection of Nature should be thoroughly amended. Through it, an agency for the overall protection of nature should be established and, within this framework, an agency for the ecological protection of agriculture, an agency for ecological protection of forestry, an agency for the ecological protection of construction, an agency—headquarters for the ecological departments of the national committees, and include in it the former state protection of nature, in a truly specialized form. It should be granted the authority to ensure compliance with the regulations on protecting nature, particularly compliance with protective management systems and the protection, and/or renewal, of the so-called backbone of ecological stability. In order to alleviate the present lack of discipline, an inspectorate for the protection of nature should be created or it should be placed within the framework of a unified inspectorate. Specific nature protection should be provided, with work teams equipped with minor mechanization that is necessary to deal with decontamination in areas subject to special nature protection, which would have the authority to control the portions of enterprises' economic plans and national committees' regional plans that are related to areas subject to special nature protection, etc. Consideration should be given as to whether, in the draft of the principles of the new law on state protection of nature, the expected decentralization of rulings and administration of the protected areas might endanger many of these areas as a result of inadequate decentralization of the national committees.

8. Some of the provisions of the law on hunting and gamekeeping should be changed, animals should not be separated into useful and harmful ones, and animals protected by Ruling No. 80/1965 Sb. should be omitted from the list, as should kestrels and buzzards, including hunting them in pheasant runs. The obligation of the manager of the hunting reserves to "care for them in the manner of a socialist manager," should be changed to "the obligation to manage them in accordance with the criteria of society-wide efficiency." Compensation for economic damage caused by the overabundance by certain types of animals (red deer and wild boars) to entities who have suffered loss should be introduced.

9. A law on noise and vibrations should be adopted, which would establish a coordinating organization to fight noise and vibration, a state testing office to test the noise level produced by domestic and imported products, and expert knowledge on buildings, and particularly communications. It should introduce fines for excess noise and include the main requirements in the existing regulations on noise and vibrations, particularly in MZ [Ministry of Agriculture] CSR Ruling No. 13/1977 Sb.

In the Sector of Economic Tools

The former lack of interest in, and sometimes downright opposition to, projects to protect the natural elements of our environment, which is presently demonstrated by enterprises, is due to their real material motivation, as well as to external causes. Not even the economic reform will influence this significantly, since the main element introduced by it—the market mechanism—when allowed to operate freely, promotes neglect of measures to protect the natural elements of the environment, and damage to natural resources. This is given by the differentiation of most of the causes of ecological damage and the entities damaged by them, furthermore by the practical impossibility, in most cases, to claim compensation through the courts for economic damage caused by another party and a zero evaluation, and thus also the impossibility to impose fines for damage to most natural resources. Correction of this situation, at the very least, requires:

1. Putting an end to toleration of so-called objective damage that is found in the Commercial and Civil Code Section 145, para. 2, and/or Section 421, para. 3, and introducing a binding stipulation that damage caused to other parties must be compensated. To facilitate the exaction of compensation, it is necessary to issue detailed methodical instructions, based on Ruling No. 40/1963 Sb. and its amendment for agriculture, for the main types of economic damage from depreciation. It is inadvisable to include economic damage that has been suffered in the financial policies. Financing, respectively cofinancing, investments from the resources of the party that was the cause of the investment. Developing research to quantify economic damage from deterioration of natural environmental elements. Changing price regulations in such a way that it will be possible to calculate the expenses caused by the trouble-free operation of permitted technologies into the price creation of the perpetrators of ecological damage, and compensation due to forbidden technologies, lack of operational discipline, and absolutely wasteful intervention into nature will be paid from the perpetrator's profits.

2. Introducing fees for annexed forest lands as an economic evaluation and a fee for the natural resource of forest lands. Setting the amount of the fee at 400 to 600 times the net annual wood production in the commercial forests in connection with emphasizing the economic contribution of the extra-production function of the forest.

3. Introducing a fee for damage to and destruction of deposits of raw minerals. Setting the amount of the fee at the sum of the reserves of the appropriate raw mineral and its price. Since it is not necessary to tolerate the destruction of raw minerals—new ones are usually found under less favorable conditions—it is not necessary to deduct expenses for extraction that have been "saved" in this way. The fee for damage to and destruction of deposits should basically be a noncosting item, compensated from the profit of the entity that caused the destruction.

4. Prices of locally-available raw materials are to be the costs based on the worst-case scenario of natural conditions with a concurrent withholding of differential subsidies and introduction of penalties for the use of natural resources. Lack of high-grade natural resources makes it necessary to exploit lower grade natural resources, which increases the product cost based on the cost of processing the raw materials. The present price policies, based on substantial mining subsidies, toleration of unavoidable damage, and prices based on the incomplete average expenses for extraction of the appropriate raw materials encourage high demands on the Czechoslovak economy for energy and raw materials. The redistribution by upper management of the different revenues of the mining enterprises 'washes' the difference between good and bad results, and the additional inefficiencies further damage nature and natural resources. Extremely demanding resources (mining coal in Handlova, raising pigs in the mountains, etc.) should not be considered to be marginal costs. In the above-mentioned cases, the liquidation of the most cost-intensive producers of relevant raw materials, in connection with freeing limits on liquidity, should be permitted.

5. Introducing a uniform price for water for enterprises and citizens who receive it from the same water supply system. To differentiate the price of water according to region on the basis of real costs involved in obtaining the water in individual water supply systems, and according to its quality. There is no unified water market, and there will not be one.

6. Excluding the basic fee rate, respectively fees for polluting the air or water resources, from costs and prices, introducing a surcharge to the basic rate for water supply and sewerage enterprises, substantially raising fees for excessive pollution of the air, discontinuing their derivation dependent on the height of the chimneys, and imposing fees on all pollution in connection with resources listed in REZZO I and II.

Instead of a Conclusion

The objective of the plan should be to initiate a trend toward decreasing the extent of deterioration. Apart from the general macrodecisionmaking, this trend should be enforced primarily through defining and gradually refining the technical, economic, and regional standards of pollution, the inviolability of individual protective measures, and in a number of areas also the

renewal of the backbone of ecological stability. Price, budgetary, credit, interest, capital consumption and other policies should support the ecological policy.

Approaches to the ecological program may differ in individual matters. But if we are to avert a threatening ecological disaster, we must not avoid basic, total change.

Vavrousek on Environment Committee, Energy Policy

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[Interview with Josef Vavrousek, CSFR minister entrusted with directing the Federal Environment Committee, by Jan Bauer; place and date not given: "I Would Close Down All Power Plants"]

[Text] Engineer Josef Vavrousek is one of the new ministers in the Federal Government. He has been entrusted with directing the Federal Environment Committee. This May, when he was still working in his former post as deputy chairman of the State Commission for Scientific-Technical and Investment Development, at a news conference at the Ekofilm exhibition in the Ostrava District he severely criticized the previous government for its lack of interest in ecological problems. Therefore, at the beginning of our interview we asked him whether—as he himself is a member of the Federal Government—he has now changed his point of view.

[Vavrousek] The Government of National Understanding dealt with a great number of inherited problems and, in view of the fact that there was no one in it who had immediate responsibility for the environment, ecological problems were pushed into the background. In the new government, I am the person who has to assert ecological interests to the maximum extent possible, but this has to be under certain conditions. Because, if I were to act absolutely rigorously, then the simplest thing of all would be to insist that all power plants are closed down at once. Thermal, fossil fuel, and nuclear power plants. However, this simply cannot be done. Therefore, we have to try and find a sensible course of action, something such as harmony between society and nature.

[Bauer] Although it has been active for a very short time, the Federal Environment Committee has already submitted a draft concept for a state ecological policy to the Federal Government for discussion....

[Vavrousek] This draft is not a product of recent weeks. It has been under preparation for a longer period; it should have been submitted to the previous government, but it did not get around to discussing the issue for reasons of time. The state ecological policy is a very important matter because it creates fundamental philosophical starting points for future consideration. Specific

aims and specific criteria for considering investment projects, the structure of the economy, economic instruments, and so on may be drawn from it. Another element is a set of specific strategies for proceeding further step by step. One not exactly negligible matter has still not been resolved—the method of financing individual projects.

[Bauer] Do you envisage any foreign assistance in this connection?

[Vavrousek] Last week, an EC commission visited our country and we agreed on cooperation in nine projects. The EC will provide approximately \$30 million from this year's budget to finance these projects and it is reckoned that in future years a substantially higher sum will be involved. However, perhaps more important is the fact that all the projects are being very carefully checked in Western Europe and we have an opportunity to learn how such projects are managed.

[Bauer] Among the proposed projects are plans for the desulfurization of thermal power plants. Why? After all, the only desulfurization unit—to date—in the Tusimice 2 Power Plant is positively useless. Will you choose different technology this time?

[Vavrousek] Probably the most stupid and most complicated technology was chosen for Tusimice and, moreover—as it has turned out—technology that it was impossible to implement under our conditions was chosen. Now we want to orient ourselves exclusively toward methods that have been tried and tested in the world and whose resulting product can be utilized in a sensible manner. At the same time, we will not desulfurize all power plants because many of them should simply be closed down. Roughly 40 percent of them will be desulfurized; these will be the most modern plants where the production facilities will last for some time yet and where the production of electricity is connected with the production and consumption of heat.

[Bauer] What will happen to the nuclear power plants that have recently caused a great deal of fuss?

[Vavrousek] This is a very complicated matter. I do not have these plants' operation itself in mind, because this can be maintained within very safe limits if it is handled properly. The problem is the entire fuel cycle, beginning with the extraction of uranium and ending with the dumping of highly radioactive waste. There are very many negative effects here. Therefore, I consider the inclination toward a too passionate development of our nuclear energy policy—both for ecological and economic reasons—to be undesirable. Our only chance is a drastic reduction in energy consumption. There is simply no other way.

GERMAN DEMOCRATIC REPUBLIC

Officer on Cost, Ecological Aspects of Ammunition Destruction

AU2208140990 East Berlin NEUES DEUTSCHLAND
in German 15 Aug 90 p 3

[Interview with Major General Norbert Wolf, acting head of the Technical Disarmament Main Department, by Rene Heilig; place and date not given: "Only in Three Years Will It Be Possible To Solve Ecological Problems"]

[Text] [Heilig] General Wolf, today, Tuesday, a two-day meeting on the topic of arms conversion was concluded in your house....

[Wolf] Our problem is the disposal of ammunition. The issue is the question of how the ammunition of the National People's Army is to be destroyed.

[Heilig] How many tonnes are you talking about?

[Wolf] A total of 300,000 tonnes. From infantry ammunition to missiles.

[Heilig] Who talked to whom at the meeting?

[Wolf] Representatives of our ministry and experts of the military services were present; the FRG Defense Ministry sent a group; officers of the Western Group of Soviet Forces; experts of the Conversion Office of the Economics Ministry; and representatives of companies from the GDR and the FRG met.

[Heilig] What was the result of the talks?

[Wolf] For instance, that at the moment no one in the world is able to destroy explosives in an ecologically safe and complete way—based upon the standards of environmental protection in a future Germany. The ammunition is indeed destroyed as ammunition....

[Heilig] ...but the explosives and propellants remain. And jobs in the enterprises that are affected by the cancellation of contracts are not created, either.

[Wolf] If research proceeds in the best possible way, an ecologically safe destruction is to be expected within three years. But now we have to continue with the things we have started. Thus, we must be given the same exemption permits as already exist in the FRG. There will be tenders for interested GDR enterprises.

[Heilig] There is still the question of costs.

[Wolf] Issuing orders is the concern of the Economics Ministry. Giving you a rough estimate, I would say this will cost 1.5 billion Deutsche marks.

POLAND

Water Specialist on Ground Water Conditions, Prospects

90EP0220A Warsaw GAZETA I NOWOCZESNOSC
in Polish No 22, 7 Jun 90 pp 6-7

[Interview with Antoni S. Kleczkowski, specialist in underground water by Eugeniusz Pudlis: "Underground Under Supervision...This and That"]

[Text] [Pudlis] Professor, we are short of water. Many of us would like to overcome our Polish difficulties with water by reaching for underground waters. In order not to worry about the "slight retention," since we have such undervalued, large riches.

[Kleczkowski] That is a misunderstanding. We are much shorter on water than it appears. Each statistical inhabitant of the world has 33 m³ of water a day; each European, 11 m³; and each Pole, 4.5 m³. Since the moment when the Aswan Dam was completed, even Egypt has had more water than we do.

[Pudlis] And these underground waters?

[Kleczkowski] Of the average of 22 km³ of water we have over the course of a year, 13.7 km³, or well more than half, consists of underground waters. We are already making use of them.

[Pudlis] Just how bad are things?

[Kleczkowski] On the whole, things are not so bad for now. In spite of the previous, very pessimistic predictions, we are not using more than we have—about 16 km³ annually.

[Pudlis] What do we have to thank for that? The economic recession?

[Kleczkowski] To a certain degree. But also the conservation regime. More and more water intakes are being closed. The low water levels in the Vistula River certainly forced the Sendzimir Steelworks (until recently the Lenin Steelworks) to close some of theirs, but the fact remains that it now consumes 4.5 times less water per ton of steel produced than when it was built. The power industry, however, overwhelms our water economy. It consumes nearly half of the water used in Poland, chiefly for cooling.

[Pudlis] Does that mean that nuclear power would use less water?

[Kleczkowski] Quite the opposite! Current nuclear-power technology uses about 1.5 times as much water as coal-fired plants. Using nuclear generation, we would already be up against the water barrier. Fortunately, that has not happened.

[Pudlis] But we, mere citizens, usually drink a mixture that has little in common with normal water. Industry, meanwhile, has reached down to the best, deep waters in

Oligocene rocks in the area around the capital city and is using the water even for rinsing or washing. This extravagance borders on crime.

[Kleczkowski] Absolutely! Underground waters are being used at present in ways contrary to common sense, and in particular, in violation of the current water law. The law says that they can be used only for the needs of the population or for the food industry or pharmaceuticals.

But plants that have nothing to do with such production have deep wells! In the Krakow Voivodship, for example, the yeast and alcohol factory in Biezanow uses one of the best water collectors, the so-called Bogucicki Sands. The Igloopol factory there is doing the same.

[Pudlis] Why do those factories not use water from the Raba River, which is not of the worst quality?

[Kleczkowski] Because, paradoxically, water from their own underground intake is much cheaper. Those thousands of deep wells are an inheritance from a time when money for industry was not a problem. Then, nearly every plant felt that having such a well was a badge of honor.

[Pudlis] Thus, it is high time, Professor, to turn the spigots on these wells.

[Kleczkowski] It is not so simple. In Lodz, for example, water with a good taste drawn from a depth of 900 meters is used for cooling the local power generation plant. And the people of Lodz drink tap water brought from the specially built municipal Sulejowski Reservoir.

[Pudlis] Can the paradox not be eliminated.

[Kleczkowski] No, because the costs of bringing these underground waters to the homes would be tremendous, and the power plant would also have to seek a new source at great cost. This does not mean, however, that in particular, drastic cases the plants should not be deprived of the use of underground waters.

[Pudlis] Is there some direct connection between water use on the surface and the waters underground?

[Kleczkowski] The quality of underground waters is determined by the use of the land surface. The truth is this: as the waters on the surface, so the waters underground. And in Poland the majority of underground waters are at relative slight depths, five to 50 meters, and they are the most subject to surface pollution.

[Pudlis] Which we do not spare them.

[Kleczkowski] Nitrogen fertilizers are used without care. To make matters worse, although we are building water systems in rural areas, we are not also building sewage systems. "Wild" sewage seeps into the deep waters and poisons dozens of wells.

[Pudlis] Is there a model for us?

[Kleczkowski] In the FRG, first the pollution of surface waters was halted, then trash and garbage dumps were secured. In this way, the quality of their underground waters is not getting worse. We can also take Lithuania as an example. They took care to limit the use of fertilizers, especially nitrogen ones (whose compounds are carcinogenic, mutagenic), and of toxic pesticides as much as possible above the largest underground collectors relatively early.

[Pudlis] But that requires having some water management plans. And we have sliced up the watersheds of particular rivers with as many boundaries as there are voivodships.

[Kleczkowski] The last administrative subdivision led to the Pilica River coming under the control of six voivodships. Where there are six cooks, there is nothing to eat.

[Pudlis] Now the Ministry of Environmental Protection has introduced a new subdivision into seven watershed areas for water management.

[Kleczkowski] I think this change is very favorable. But other legislative innovations are less optimistic. If a local self-government has the right to decide on the localization of plants, I fear it will not look particularly at how the future plant will affect, for example, underground waters. Someone must watch that.

[Pudlis] In other words, the liquidation of the Central Office for Water Management was a mistake?

[Kleczkowski] It was liquidated out of personal animosity. Its head was not liked by a deputy premier at the time. And such a central body, in my opinion, should exist, since water, by its nature, is not divisible and should be in one set of hands.

At least in the sense of supervision and inspection, policing administrative functions. The Central Office for Water Management as the "water police" should play a role similar to that of the former Mining Office, a mining police in the mining industry.

[Pudlis] You conducted research on a strategy to protect underground waters in Poland.

[Kleczkowski] The result of these four years of work by more than 200 hydrogeologists is the map in front of us. We adopted the principle of protecting the largest collectors, and we have noted 180 of them, distinguishing a so-called Zone of Greatest Protection and a Zone of Greater Protection. In all, they amount to nearly 90,000 km², or 28.7 percent of the surface area of the country.

[Pudlis] What will be required in these zones?

[Kleczkowski] Principles oriented toward a pro-ecological management. Neither dumps or animal husbandry farms will be allowed. The whole strategy has been designed to aid our water law.

[Pudlis] Will it work?

[Kleczkowski] Initially, we will make 150 copies of the map and send them to each voivodship. We hope that the collectors of underground waters that we have picked out will come under special supervision. If not, then the local authorities and the other residents will have the kind of water they brew for themselves.

Executive Order on Air Pollution Published

90WN0130Z Warsaw DZIENNIK USTAW in Polish
No 15, 14 Mar 90, ITEM 92 pp 181-184

[Executive Order No. 92 of the Ministry of Environmental Protection, Natural Resources and Forestry dated 12 February 1990 on Air Pollution]

[Text] Pursuant to Article 29 of the Decree of 31 January 1980 on the Protection and Shaping of the Environment (Dz.U., No. 3, Item 6, 1980; No. 44, Item 201, 1983; No. 33, Item 180, 1987; and No. 26, Item 139, and No. 35, Item 192, 1989), the following is hereby ordered:

Paragraph 1.1. Permissible concentrations of air pollutants are determined separately for specially protected areas and for remaining areas.

1.2. Specially protected areas comprise spa areas, spa protection areas, national parks, nature preserves, and landscape parks.

Paragraph 2.1. The permissible concentrations of air pollutants for specially protected and remaining areas are defined in Supplement No. 1.

2.2. The permissible concentrations of air pollutants specified in Supplement No. 1 do not apply to areas occupied by organizational units engaging in economic activities causing air pollution.

2.3. The areas referred to in Subparagraph 2 are governed by the regulations prescribing the maximum permissible concentrations and intensities of noxious substances at workplaces.

Paragraph 3.1. A decision defining the permissible kinds and quantities of air pollutants, hereinafter termed "the decision on the permissible emission," is issued for a specified period of time by a voivodship-level local office of state administration. The organizational unit is dutybound to submit documentation that contains in particular:

- 1) description of the technologies employed;
- 2) characteristics of discrete emitters;
- 3) data on operating time of the organizational unit in the course of a year, separately for each emitter;
- 4) description of the kinds and quantities of soot and gaseous pollutants in metric tons per year, in kilograms per hour (mean values), in grams per second (maximum values), and in kilograms per output unit for discrete sources of emission and emitters;

5) description of the nature of pollutant-purification facilities and of the effectiveness of their action;

6) description of the circumstances under which pollutants are spewed into the air;

7) the existing state of air pollution and the state anticipated as a result of the operations of the organizational unit;

8) description of the occurrence time and extent of maximum concentrations of emitted substances and their quantities;

9) conditions of the propagation of pollutants in the air;

10) plans for measures to reduce the air pollution caused by the operations of the organizational unit.

3.2. The decision on the permissible emission specifies the kinds and quantities of the pollutants permitted to spread in the air, jointly and separately for every emission source and emitter, and the conditions of their spewing into the air.

3.3. The decision on the permissible emission may impose obligations ensuing from the need to prevent air pollution.

3.4. The obligations referred to in Subparagraph 3 may be imposed by a separate decision also after the permissible emission is determined.

Paragraph 4.1. The permissible quantities of such air pollutants as sulfur dioxide, nitrogen dioxide, and the soot arising in the process of the combustion of fuels at power plants are defined in Supplement No. 2.

4.2. To adhere to the requirements specified in Paragraph 5, the voivodship-level local office of state administration fixes for the sources of pollutant emission values of permissible emission lower than those given in Supplement No. 2.

Paragraph 5. The permissible emission of air pollutants specified in the decision on permissible emission may not result in excess pollutant concentrations on the specially protected and remaining areas referred to in Paragraph 1.

Paragraph 6.1. Organizational units which spew from a single emitter more than 1,200 kg of sulfur dioxide or 800 kg of soot per hour into the air are dutybound to conduct continuous measurements of the quantities of these substances emitted into the air.

6.2. The organizational units which spew more than 100 kg of sulfur dioxide, or more than 100 kg of soot, per hour into the air are dutybound to conduct twice a year, at times coordinated with the local voivodship-level agency of state administration, measurements of the quantities of these substances spewed into the air.

6.3. The units referred to in Subparagraphs 1 and 2 are dutybound to evaluate at least once every 2 years the effectiveness of their pollution-control facilities.

6.4. The voivodship-level local office of state administration acts as follows with respect to the measurements conducted by the organizational units:

1) it specifies the kinds of substances subject to the measurements and the specific conditions for the conduct of the measurements;

2) it monitors the accuracy of the measurements and, as the need arises, conducts control measurements on its own.

Paragraph 7. The provisions concerning organizational units apply correspondingly to individuals who engage in economic activity.

Paragraph 8. Whenever this Executive Order refers to a voivodship-level local office of state administration, it is construed to mean an office competent for matters concerning environmental protection in a voivodship.

Paragraph 9. Proceedings initiated or not completed by the effective date of this Executive Order shall be completed in accordance with the provisions of this Executive Order.

Paragraph 10. The Executive Order of the Council of Ministers of 30 September 1980 Concerning the Protection of Atmospheric Air Against Pollution (Dz.U., No. 24, Item 89), is hereby voided.

Paragraph 11. This Executive Order takes effect 14 days after it is published.

Minister for Environmental Protection, Natural Resources and Forestry: B. Kaminski.

Supplement No. 1 to the Executive Order of the Minister for Environmental Protection, Natural Resources and Forestry of 12 February 1990 (Item 92)

Permissible Concentrations of Air Pollutants

No.	Pollutant	Permissible Concentration of Pollutants in micrograms/cu m					
		Areas			Specially Protected Areas		
		30 min	24 hr	Mean Annual	30 min	24 hr	Mean annual
1	2	4	5	6	7	8	
1	Acrylonitrile ¹	-	2.0	0.5	—	2.0	0.5
2	Acetaldehyde	20.0	10.0	2.5	10.0	5.0	1.3
3	Methyl alcohol	1,000.0	500.0	130.0	200.0	100.0	25.0
4	Ammonia	400.04	200.0	51.0	100.0	50.0	13.0
5	Aniline	50.0	30.0	10.0	20.0	10.0	2.5
6	Arsenic ²	—	0.05	0.01	—	0.05	0.01
7	Asbestos ³ (fibers/cu m)	—	1,000.0	—	—	1,000.0	—
8	Azotanes ⁴	200.0	100.0	25.0	50.0	30.0	10.0
9	Nitrogen dioxide	500.0	150.0	50.0	150.0	50.0	30.0
10	Benzene	—	10.0	2.5	—	10.0	2.5
11	Benzo/a/pyrene (ng/cu m)	—	5.0	1.0	—	5.0	1.0
12	Chlorine	100.0	30.0	4.3	30.0	10.0	1.6
13	Vinyl chloride	—	5.0	1.3	—	3.0	0.4
14	Chromium ⁵	—	2.0	0.4	—	0.5	0.08
15	Hydrogen cyanide and other cyanides ⁶	20.0	10.0	2.5	10.0	5.0	1.3
16	Perchloroethylene	600.0	300.0	70.0	200.0	120.0	30.0
17	Dichloromethane	400.0	150.0	60.0	100.0	60.0	15.0
18	1- 2-dichloroethane	400.0	150.0	60.0	100.0	60.0	15.0
19	Carbon disulfide	50.0	20.0	3.8	15.0	4.5	0.6
20	Phenol	20.0	10.0	2.5	10.0	3.0	0.4

Permissible Concentrations of Air Pollutants
(Continued)

No.	Pollutant	Permissible Concentration of Pollutants in micrograms/cu m					
21	Fluorine ⁷	30.0	10.0	1.6	10.0	3.0	0.4
22	Formaldehyde	50.0	20.0	3.8	20.0	10.0	2.5
23	Phthalates	100.0	50.0	13.0	30.0	10.0	1.6
24	Cadmium ⁸	—	0.22	0.01	—	0.2	0.001
25	Xylene	300.0	100.0	16.0	40.0	10.0	1.3
26	Sulfuric acid ⁹	200.0	100.0	16.0	100.0	50.0	7.9
27	Hydrochloric acid ¹⁰	200.0	100.0	20.0	100.0	50.0	10.0
28	Manganese ¹¹	—	4.0	1.0	—	2.0	0.5
29	Copper ¹²	20.0	5.0	0.6	6.0	2.0	0.3
30	Nickel ¹³	—	100.0	25.0	—	100.0	25.0
31	Nitrobenzene	50.0	30.0	10.0	20.0	10.0	2.5
32	Vinyl acetate	100.0	—	—	50.0	—	—
33	Lead ¹⁴	—	1.0	0.2	—	0.5	0.1
34	Ozone	100.0	30.0	—	50.0	20.0	—
35	Dust suspension	—	120.0	50.0	—	60.0	40.0
36	Mercury ¹⁵	—	0.3	0.04	—	0.1	0.02
37	Sulfur dioxide: Through 1998	600.0	200.0	32.0	250.0	75.0	11.0
	Sulfur dioxide: Starting in 1999	440.0	150.0	32.0	150.0	75.0	11.0
38	Hydrogen sulfide	30.0	5.0	1.0	4.0	1.0	0.5
39	Styrene	20.0	—	—	10.0	—	—
40	Carbon monoxide	5,000.0	1,000.0	120.0	3,000.0	500.0	61.0
41	Toluene	300.0	200.0	50.0	100.0	50.0	13.0
42	Trichloroethylene	400.0	150.0	60.0	50.0	10.0	1.2
43	Vanadium ¹⁶	—	1.0	0.25	—	0.1	0.0005
44	Carbon	150.0	50.0	8.0	50.0	20.0	4.0

NOTE: The permissible concentrations of air pollutants are considered as adhered to if their values, as tabulated above in columns 3, 4, 6, and 7, are at most exceeded by a factor of 2 for 0.2 percent of the time during a year with respect to 30-minute concentrations and for 2 percent of the time during a year with respect to 24-hour concentrations.

¹In aerosol form; ²In soot suspension; ³In soot suspension; ⁴NO₃ compounds in soot suspension; ⁵Degree of oxidation + in soot suspension; ⁶HCN compounds; ⁷In form of fluorine and water-soluble fluorides; ⁸As sum of cadmium and its compounds in soot suspension; ⁹In aerosol form; ¹⁰In form of gas and aerosol; ¹¹In soot suspension; ¹²Cu compounds in soot suspension; ¹³In soot suspension; ¹⁴As sum of lead and its compounds in soot suspension and in aerosols; ¹⁵In gaseous phase and in soot suspension, as sum of; ¹⁶In soot suspension.

Permissible Fallout of Air Pollutants

No.	Pollutant	Areas	Specially Protected Areas
1	Cadmium [*]	10 mg/sq m/year	10 mg/sq m/year
2	Lead ^{**}	100 mg/sq m/year	100 mg/sq m/year
3	Dust, total	200 g/sq m/year	40 g/sq m/year

^{*}As sum of cadmium and its compounds

^{**}As sum of lead and its compounds

**Supplement No. 2 to the Executive Order of the
Minister of Environmental Protection, Natural
Resources and Forestry of 12 February 1990 (Item 92)**

**Permissible Limits on the Emission into the Air of the Sulfur Dioxide, Nitrogen Dioxide, and Dust Arising in the
Process of the Combustion of Coal at Power Plants, in grams/GJ**

Fuel	Furnace	Facilities								
		Group A			Group B			Group C		
		SO ₂	NO ₂ *	Dust	SO ₂	NO ₂ *	Dust	SO ₂	NO ₂ *	Dust
		2	2	4	5	6	7	8	9	10
Black coal	Stationary grate furnace	990	35	1,850	720	35	1,370	650	35	1,370
	Stoker	990	160	800	640	95	600	200	95	600
	Coal-dust furnace with liquid ash removal	1,240	495	170	870	170	90	200	170	90
	Coal-dust furnace with dry ash removal	1,240	330	260	870	170	130	200	170	130
Brown coal	Coal-dust furnace with liquid ash removal	1,540	225	140	1,070	150	70	200	150	70
	Coal-dust furnace with dry ash removal	1,540	225	195	1,070	150	95	200	150	95
Coke	Stationary grate furnace	410	45	170	410	45	235	410	45	235
	Stoker	500	145	310	250	145	235	250	110	235
Fuel oil	Installed capacity	1,720	120	—	1,250	120	—	1,250	90	—
	Installed capacity 50-MW boilers	1,720	160	—	170	160	—	170	120	—
Natural gas	Installed capacity	—	60	—	—	35	—	—	35	—
	Installed capacity 50-MW boilers	—	145	—	—	85	—	—	85	—
Wood	Grate furnace	—	50	—	—	50	—	—	50	—

* Denotes the sum of nitric oxide and nitrogen dioxide converted to nitrogen dioxide.

The quantities given in the above table should be applied to facilities with an installed capacity of upward of 0.2 MW_e.

The quantities given in the above table concern the emission of pollutants relative to the chemical energy flux/the mathematical product of the consumption of fuel and the calorific value of that fuel/introduced in the fuel into the power generating process.

New facilities must meet the requirements specified for Group C.

New facilities are considered to be:

—facilities put into operation after 31 December 1994;

—facilities whose construction commences after this Executive Order takes effect.

As for the facilities existing on the effective date of this Executive Order: during the period until 31 December 1997 they must meet the requirement specified for Group A; and after 31 December 1997 they must meet the requirements specified for Group B—these requirements are considered to be satisfied in the event that they are met with respect to overall emission from all activated sources prior to the effective date of this Executive Order.

Facilities which do not qualify for the above classification must by 31 December 1997 meet the requirements

for the facilities existing after that date, and after 31 December 1997 they must meet the requirements for Group C.

Environmental Inspectors Denied Entry to Soviet Units

*LD0708025990 Warsaw PAP in English 1802 GMT
6 Aug 90*

[Text] Szczecin, Aug 6—Five inspectors of the Environment Protection Department of the Szczecin Provincial Office were not allowed to enter the premises of Soviet Army units in the Szczecin Province, Director of the Department Norbert Maliszewski told PAP.

According to settlements made at a meeting several months ago between the Szczecin provincial governor and the plenipotentiaries of the Polish and the Soviet governments for Soviet troops in Poland, three units stationed in this province were to be visited by those inspectors with a view to finding the degree of environmental threats in the area and possibly quickly taking protection activities. Also, the costs of the devastation of environment and payments for the use of the area by Soviet units were to be settled.

Those units' commanders' refusal to let in the Polish inspectors was explained by some special decisions that allegedly have been made in this respect.

Environmental Inspectors Prevented From Viewing Soviet Units

*LD0708154690 Warsaw PAP in English 1502 GMT
7 Aug 90*

[Text] Warsaw, Aug. 7—Polish environmental protection inspectors were prevented from inspecting Soviet Army Units in Swinoujście, Kluczewo and Chojno in the Szczecin Province, Col. Henryk Urbaniak, director of the Bureau of the Polish Government Plenipotentiary for Soviet Troops in Poland, confirmed on the phone to PAP today.

Today's GAZETA WYBORCZA paper blamed PAP for reporting inaccurately on this issue. PAP said yesterday that the inspectors "were not allowed to enter the premises of Soviet army units in the Szczecin Province" while it would have been more accurate to say that "the Soviet side prevented the Polish inspectors from controlling the site."

The fact that the Poles have not been able to control the state of environment in those areas for several months now is due to the lack of the Soviet side's consent to proposed dates.

Thus, there is no more to it than to say that the Polish environmental inspectors did not enter the area of Soviet Army units and were not able to inspect it.

ROMANIA

Water Pollution in Pitesti, Curtea de Arges Noted

*AU2108165790 Bucharest ROMPRES in English
1433 GMT 21 Aug 90*

["Ecology—Water Pollution in the towns of Pitesti and Curtea de Arges (North of Bucharest)"—ROMPRES headline]

[Text] Bucharest, ROMPRES, 21/8/1990—Deterioration of the drinking water quality in the area Curtea de Arges - Pitesti is due to the over-proliferation in storage lakes upstream and downstream Pitesti of certain blue alga genera that are part of the normal water microflora, a communique of the Ministry of the Environment shows.

This blue alga proliferation is caused by the long drought and the high temperatures reported of late, as well as by the discharge in the Arges River of big quantities of waste water that is incompletely purified or not purified at all (the Curtea de Arges Purification Station is running completely out of order and something is wrong with that of Pitesti, too.). The Ministry of the Environment assigned a commission that went to Pitesti and Curtea de Arges and took measures to improve the performance of the two stations.

The blue alga over-proliferation in summer time is a complex phenomenon and it takes time to stop it. Bucharest's source of drinking water is the same Arges River and although potable, its unpleasant taste and smell may still persist for a while.

Economic Aspects of Copsa Mica Pollution

*90BA0275A Bucharest DREPTATEA in Romanian
21, 22 Jul 90*

Article by Amelia Neacsu: "Copsa Mica: Between Ecological Tragedy and Economic Interest"]

[21 Jul pp 1, 3]

[Text] The warnings and appeals of experts and inhabitants in the area have naturally called attention to the ecological tragedy of Copsa Mica. A protest demonstration organized in Medias on 30 June by the Romanian Ecological Movement [REM] demanded the complete shut down of the two major polluting plants: CMMN, the Metallurgical Combine for Nonferrous Metals, and Carbosim.

Its extremely high level of pollution has put this area into the unfortunate position of being "the most polluted area in Europe."

Because of the presence in large quantity of carbon black, sulphur dioxide, lead, zinc, cadmium, chrome, nitrates, and other extremely toxic pollutants, the average lifespan of the local population is 10 years shorter than the national average.

The pollution is affecting a very large area—Copsa Mica-Medias and surroundings—and endangering the lives of over 100,000 people.

Also, the flora is being destroyed, animals are becoming sick, and toxic substances are found in vegetables, milk, and meat.

Naturally, the question arises, are we seeing here 100,000 people about to disappear? Is this deliberate genocide?!

The Local Impact

Nothing grows here. It is an area with no nature, no life. Everything is black: the sky, the earth, the sparse grass, the houses, and people's faces. The air is heavy and stifling. People's faces bear the deep furrows of hard, dehumanizing work, and their hands are filled with darkness. The darkness is deeply etched in their hands. The same darkness left other traces, too, curbing their backs toward the black earth devastated by poisons, the earth that may never be brought back to life again.

The grass is burnt and sparse, the trees are dry, and only here and there a few leaves battle to defeat death. The few animals, also sick, move sluggishly. It is only inertia that keeps them alive...

Blackened people, nature, animals, air, and houses—a dark picture, smoke, sadness, toxic substances inhaled day after day, in growing volumes, ever more crushing and inexorable... h3

The Medical Opinion

"The physician should be consulted before any decision is made in the plant concerning changes or developments in the production process that have a direct impact on people's health," said Dr. Jan Nenea, CMMN's physician and an expert in labor medicine and industrial issues.

"It is utterly unacceptable in a plant of this type that the physician's advice should be ignored! The problems here are very complex and the risk of disease is very high. In spite of that, we, physicians are not allowed to go into the plant unaccompanied. The pollution is so great that in some areas poisoning is instantaneous. In addition to his medical expertise, a plant physician must also be very well informed about the issues of the respective plant. We practically have here a second specialization, which is necessary in order to be able to judge whether a technological process is or is not within the acceptable limits for human health.

"The CMMN employs approximately 3,800 people who are given medical checkups every year: blood and urine tests, blood pressure, and clinical examination. Generally, lead becomes fixated in the bones and spine and is eliminated in small quantities in the urine. About 3,500 of the workers are affected by professional ailments caused by pollution that has exceeded the acceptable toxicity limits.

"We have only two specialized clinics, in Cluj and Sibiu, with hospitalization facilities in the area of interest to us. Patients are given injections to eliminate the lead but the elimination is not complete. After this 'chelate treatment,' the patients are sent to Avrig for two weeks.

"Among the many diseases we handle here are complications that can be treated only in Sibiu. Lead causes lead poisoning, anemia, neurological problems, and kidney lesions; cadmium poisoning causes bronchitis, lung emphysema, bone lesions, arterio-sclerosis, high blood pressure, and prostate cancer; zinc in quantities over 20 mg. a day causes ague, fever, and leukocytosis.

"While lead and other substance poisoning is slow, carbon monoxide poisoning is instantaneous.

"Other professional diseases are ulcers and a certain biological degradation of the body and its resistance.

"I have seen here diseases and complications that I had never seen in my 30 years as a doctor. Nevertheless, people continue to work and live here, because money is more important to them than their health. And since we're talking about money, I want to point out that in contrast to the plant workers, the fact that the entire population is exposed to almost the same degree of toxicity is not recognized, so that no money allocations are paid accordingly.

"Our working conditions are not up to requirements or efficiency, either. We don't have facilities for hospitalization, treatment, or transportation, nor specialized staff. In spite of all these shortages, instead of opening new clinics, the reverse is happening: Clinics are closed down. At the moment we have ten specialists at this clinic while the rest of the slots were eliminated, as were the maternity, the hospitalization and inpatient section, and the dermatology section.

"We live here in an area with the maximum incidence of professional diseases, to which we must add the bad psychological condition of the people. The inhabitants of Copsa Mica suffer from neurological ailments and carbon black can create genuine psychoses.

"What we see here is carbon black neurosis. It is enormously difficult to treat a serious disease exacerbated by psychological trauma. The physicians must actually battle both diseases at once.

"Work animals don't live more than four-five years because the grass they eat is infested with chemicals.

"Recent analyses have shown that carbon black in the atmosphere now also contains residual tar, which is a carcinogene. Unfortunately, this can be demonstrated only with sophisticated equipment, which we don't have."

Nevertheless, People Stay

In spite of the harsh conditions and the diseases around them, people continues to stay.

Among the locals, Mr. Tica Alexandru, a retiree, wondered: "How can I escape? This is where my parents were born, this is where I was born, where I worked for 40 years, where I helped build the church. I can't leave. I want to be buried here, next to my parents and ancestors." I met him at the Copsa Mica Town Hall, where he was agitating for the introduction of an American method in the production of carbon black, which a foreign firm had already offered to our polluting plant, a method that can help diminish much of the area pollution.

"We must do something!" Yes! For the people, for nature, for our successors!

Daily Life in Hell

On top of the difficulties people have to handle here, there are also the daily shortages. Mayor Oniga told us about the problems of Copsa Mica residents:

"Indeed, there are problems with alcoholic beverages and tobacco supplies. But those are not the most important problems. We have difficulties supplying hot water and even cold water to households. Some of the pipes are broken and the basements of many apartment houses have been flooded. Some 70 percent of the 1,080 apartments occupied by gypsy families are in very bad condition. They simply destroyed them. They set fires and broke windows. The whole neighborhood looks terrible. Not all the gypsies are like that; some work and mind their business. If we had enough policemen we might be able to handle these difficult problems, as well as those caused by the large number of commuters.

"At the same time, because of the high pollution in the area, we need many medical specialists which we don't have; quite the opposite. The polyclinic and the maternity clinic have been closed down and we are left only with a dispensary. We were the stepchild of the county."

To offer the workers some incentive, the cafeteria provides them with one free meal a day. Some 4,000 employees from both Carbosim and CMMN take advantage of this offer.

The cafeteria food is very good. The person responsible for the quality of the cafeteria is its good administrator, Mr. Petrisor Ciobanescu; for her part, "Aunt Nuti," the main chef, although profoundly unhappy about the existing pay differences and the humiliating ceiling on her salary, keeps her "golden hand" in and continues to cook excellently. "In the past few months we have had to cook for the Carbosim workers, too, but although the work is now double, only CMMN pays us. After 30 years of work, I get only 2,300 lei. Salaries at the plant have increased a lot but ours have not, although we live in the same conditions," she said.

[22 Jul pp 1, 3]

[Text]

State Interests and Individual Interests

Why is the factory not closed down and why do people choose to live in this ecological inferno?

The plants cannot be closed down because the Romanian economy needs their products.

The Carbosim plant was partially closed, although not for ecological reasons, but because it was losing money; the plant needed a general technical overhaul which it had not had since its establishment in 1940. CMMN is the only plant of its kind in the country and in Europe. Unfortunately, it, too, is working below capacity and needs to have its installations updated. Daily production is now 73 tons, at an estimated \$1,700 per ton for zinc; the daily lead production is 40 tons at \$4,000 a day. Carbon black is required to manufacture rubber, pigments, and dyes; some of the plant products include, among other things, polymers, formic acids, and cocsalic [as published] acid for drugs. And what makes people remain in this ecological hell are the postrevolutionary benefits: pay rises, hazardous substances allowance, six-hour work day, and one free meal (instituted under a decree signed by Prime Minister Petre Roman and posted in block letters at the entrance to the plant). The attraction of money keeps many tied down to their suffering.

What Can Be Done?

Chief Engineer Gheorghe Prisacaru of Carbosim spoke to us about ways of reducing the pollution:

"The governmental decision was to shut down only one production line, not the entire plant. Since 13 January we have had a repairs plan that envisages rebuilding this entire technological line with the aid of the FRG branch of an American firm.

"Our Russian-made installation was supposed to produce carbon black on the basis of methane gas on seven production lines. Unfortunately, we gradually introduced coal and since 1974 we began to work at a five percent loss, which is very high—in fact it represents about four tons of carbon black emitted into the atmosphere daily."

"The pollution was not that bad in the beginning. Our filters are based primarily on tight sealing. If the filters are not sealed, gas escapes into the atmosphere. At the same time, a certain temperature has to be maintained in the chambers in which the carbon black is collected because our product is very flammable. Because we cannot maintain a constant temperature, we have to use water cooling which causes cracks in the collection chamber and thus permits carbon to escape.

"Now we want to change the installations so as to use the old technology, the one which used methane gas to obtain carbon black, while later we hope to use modern procedures on a large scale; we are aware of these procedures but the equipment they require is not yet manufactured in Romania. We hope to finish the repairs

by the beginning of November. We are now in negotiations with the Japanese firm Cabot that will help us start up the installations. I want to emphasize that at the moment the enterprise works at a loss because the existing installations don't operate at normal parameters."

(At CMMN, "goodwill" or lack of time prevented Director Nicolae Bodea from meeting with us.) However, CMMN...

After a tragi-comic scenario along the lines of "come, stay, stop, come back after 1300," after 1300 he was obviously not there anymore... Not to forget the note left at the gate not to let us in... A bothersome visit, what?

We did talk with foreman Dumitru Opris and shipper Nicolaescu.

"Furnace No. 2 was stopped on 6 February 1990 because the installations were malfunctioning. One primary reason is the quality of the oil concentrate. We used to import high quality minerals from Iran, coking coal from Czechoslovakia, Japan, China, and Poland, but now we use indigenous oil which is not up to requirements.

"Secondly there is the problem of updating the installations and having a general overhaul. The plant was built between 1955-60, and there has not been any general overhaul since 1968, and that is why gas is escaping into the atmosphere. Because of the installations we're now using, a lot of gas escapes: sulphur dioxide, for example. But we cannot halt production because the sulphur is very necessary for Romania's economy and industry.

"There are two methods used to obtain sulphuric acid: through combustion, which yields 60-70 tons a day, or through pyrite, which yields 150-160 tons a day. But the production is also cut because of shortages of raw materials, namely lead and zinc ore. We rely on the miners for our supplies. If we don't get the ores, we cannot produce and the whole country comes to a standstill!"

The pollution will continue even if the production method is changed we learned, but it will be within tolerable limits.

"We hope that by 1 August we can start up the new installations, if we can master the technical aspect naturally, because the necessary parts are procured only domestically and must be of a very good quality and versatile."

"The ecologists have demanded that the plant be closed down but the pollution we cause is not as bad as that caused by Carbosim. We are endeavoring to reduce the pollution as much as possible. An additional gas-burning torch was put into use in 1989 for that purpose. The interesting thing is that the pollution was far lower before the torch began to be used... One explanation may be that the installations have been in use much too long."

Nevertheless, the people who work here in Copsa Mica have become used to the air. The ones who leave in large numbers are the Saxons.

"Some 25 percent of our workers were Saxons but now there are not enough people left to do the job. Since the installations are now being overhauled and we plan to get new ones, too, we need well trained, honest, and diligent workers."

In spite of the director's flight and his note at the gate, we did manage to visit one of the workshops—the lathes section—where we had an opportunity to ascertain the magnitude of the shortage of equipment.

Enormous investments were sunk into mammoth lathes that have never been used. Whatever work is done, intermittently at that, is done with old equipment because the new cannot be used. If the same situation prevails in other sections, too, then small wonder that productivity has dropped, that the plant is losing money, and that the pollution level has increased.

Conclusions

From an economical viewpoint, the two large plants must continue working because our economy needs them even though they are responsible for this ecological inferno. From a humanitarian viewpoint, these are two industrial giants, two megalomaniac plants that endanger and affect the lives of more than 100,000 people.

Between Scylla and Charybdis, between the devil and a hard place, or under the sword of Damocles, the situation remains disputable and conflicted. What is in the balance is economic interests against human lives...

So far there has been only patch up work done and if the technological modernization will follow the same line—because from what we have seen, domestically-made parts will be used even for repairs carried out by foreign firms and under foreign licenses—a positive solution is not round the corner.

The measures that will be taken must absolutely be radical, firm, and speedy; both intellectual and physical capabilities must be mobilized to change the present situation.

The bottom line is as sad as the area's reputation as "the most polluted region in Europe:" "we need them, even though they are responsible for this ecological inferno."

Some 100,000 people are in danger, people who pin their hopes on the possible installation of filters expected to resolve (partially) the problem of pollution.

Our only consolation is that we are the "only ones in Europe" who manufacture this kind of products. Is this something to be proud of? Shouldn't we rather wonder why the rest of the world is not manufacturing them? Is the answer difficult? No! It's clear: No one wants this kind of pollution in their own country, so they prefer to

buy whatever they need but the prices we get, be they even in foreign currency, are by far not worth the damage produced.

The emotional and material damages inflicted on the people, suffering animals, scorched earth...

The chemical industry is undoubtedly useful but it must be furnished with appropriate installations! Consequently, heavier investments are preferable to environmental disaster, investments capable of dissipating the specter of death in the area.

BRAZIL

Norwegian Tanker Spills Gasoline in Santos

PY0408161090 Madrid EFE in Spanish 0044 GMT
4 Aug 90

[Text] Santos (Brazil), 3 Aug (EFE)—The commander of the fire fighter corps has reported that Santos, 72 km east of Sao Paulo and the most important port in Latin America, is being threatened with ecological catastrophe by a 265,000-liter gasoline spill from a Norwegian tanker.

Brazilian officials have levied a \$2-million fine on the company that owns the ship Tank Queen, which has a Philippine crew, and reported that this tanker will be allowed to leave port only after the cause of the spill has been discovered.

The spill began when the Tank Queen was unloading fuel at the port of Santos. It resulted in a four-km-long gasoline slick in the port; the width of the slick has not been specified.

Claudio Caquejo, commander of the Santos Fire Fighter Corps, after evaluating the situation with municipal Mayor Telam de Souza, said that "a match or engine spark would be enough to cause a catastrophe."

DOMINICAN REPUBLIC

Magnitude of Reforestation Costs Estimated

90WN0226A Santo Domingo EL SIGLO in Spanish
19 Jul 90 p 11

[Text] When discussing the forest problem and the general deterioration of renewable natural resources (RNR) in the Dominican Republic, we should remind our kind readers that two thirds of the entire national territory consist of mountain soils and marginal land, with very severe limitations on their use. They make their greatest social contribution if they are maintained constantly with some type of plant cover.

Of the country's 48,000 square km, 30,000 should be protected all the time, whether based on protective woods, which should exist at all critical points of watersheds, timber-yielding forests, and energy-producing woods for controlled exploitation, or plantations with permanent crops, such as coffee and fruit trees, as well as natural pasture for livestock breeding without overgrazing. Also suitable, of course, are agro-forestry or agro-silvicultural projects that allow for combined utilization of conservation agriculture and forests producing lumber, firewood, and coal, as well as animal feed, all technically controlled.

Presuming a reforestation cost of 600 pesos per tarea [equivalent land measurement unknown], according to the available data, and after making the pertinent calculations and conversions, based on the assumption that, at present, it would only be necessary to involve 50

percent of the 30,000 square km, then we have 1.5 million hectares. In other words, there are nearly 24 million tareas that would require over 14 billion pesos to reestablish their plant cover. Obviously, this is a fabulous sum of money impossible to accrue, much less to make available in such a weak economy as ours.

But the foregoing calculation falls short, because we have only taken into account the cost of the polyethylene bags, the earth for filling the bags, and the seed or plantings, the tending of the seedbeds, as well as the transportation and cost of transplanting. But what about the men, women, and children living on this territory? What is the cost of their health, education, food, and other requirements? What does it cost for thousands of families who would otherwise be incorporated into the underprivileged districts of cities to coexist with the woods?

Perhaps no one can answer those questions, but the fact is that the goal of reforesting our mountains and other parts of the national territory demanding permanent protection to prevent their deterioration is a long, expensive task, which will never be carried out using as weapons only repression and a certain amount of limited investment, which after trying for nearly 25 years has not even amounted to 50 million pesos.

So, it is absolutely essential and, moreover, unpostponable, to devise a national plan for the protection, recovery, and utilization of our renewable natural resources. Society as a whole must become involved in its execution, and its cost must be defrayed by the state, the private sector, and international cooperation.

The national plan that we propose must be a combination of the management plans for each of the country's principal basins, sub-basins, and hydrological areas. It must be clearly and decisively stipulated which areas, once they are reforested, are not to be touched for any reason except for study and research, and which could be rationally used, according to the instructions in the management plan itself.

Rational use is the fundamental issue. Therein lies the "philosopher's stone" in terms of the forest problem. The forest Gordian knot will be untied when we begin using resources in a suitable fashion, and when the open wounds are not deep enough to jeopardize the ecosystem.

Why do we put so much emphasis on the issue of "suitable use" or "rational use"? The fact is that the country cannot survive without using 66 percent of its territory. Besides the production of nearly all the potable and irrigation water, there are hundreds of thousands of families living in the watersheds and hydrological areas who cannot leave and take off for the helter-skelter of the city, but must continue feeding themselves and producing goods for their own use and for the market. The human being is the most precious part of nature, and for his survival he must make use of the resources at his disposal without damaging them. Of course, there must

be a correspondence between human needs that are permanent and the permanent conservation of the supply source.

Unfortunately, the manner in which the problem has been treated has resulted in enmity between humans and trees, because "If I plant it I cannot cut it." Can you imagine a more inconsistent policy?

Therefore, despite the country's high forest potential, we are importers of over \$100 million worth of wood and wood by-products; and we use some of the hydrocarbons that we import to provide energy for furnaces and stoves.

Now then, despite the fact that what we have brought up consists of examples of failures, the greatest of which was the so-called "Natural Resources Management Project," or "Project Marena," executed by the State Secretariat of Agriculture, all is not lost in the country. Although associated with small areas, there have been several positive experiments, some bearing extraordinary results. This holds true of the agro-forestry projects developed by the international cooperation group known as Endacaribe. We might also mention the dry woods management program in Azua, carried out by the German Cooperation Service (GTZ). The European Economic Community (EEC), with its DRI-Cibao project, is expending efforts on the northwestern line, although it has not yet reached the proposed goals.

The Spanish Agency for International Cooperation is conducting an agro-forestry project called "Sabaneta Integrated Development," apparently intended to reforest the Sabaneta dam watershed, focusing on the harmonious coexistence between man and the environment. Until now, however, we have not heard anything about the formulation of a basin management plan, but rather about various activities that are not necessarily of an integrating nature.

The most noteworthy success in RNR planning and administration has been achieved in the Sierra Plan, executed in the municipalities of Janico, San Jose de las Matas, and Moncion, in the Central Cordillera. It covers the basins of the Bao, Mao, and Amina Rivers, tributaries of the Northern Yaque. Despite its major limitations, the Sierra Plan has gradually become the best example to imitate. I invite your presence next week, when we will learn more about that institution which, in the words of Monsignor Roque Adames, is creating "a new culture for the new man of the sierra."

HONDURAS

Desertification of Siguatepeque Described

90WN0214A Tegucigalpa EL HERALDO in Spanish
26 Jun 90 p 9

[Text] The apathy and lack of interest among its authorities and residents are rapidly converting a beautiful section of Honduras into a hot, dry, gloomy, and desolate landscape.

During the early morning hours, at first in order to evade the authorities, and now at any hour of the day, one sees wagons, trucks, oxen, etc., hauling firewood and lumber to be used for fuel in households or in the bakery industries of Siguatepeque, or for the lime kilns and brick-making machines in the vicinity. This is done with such complacency on the part of its inhabitants that, because they are so accustomed to seeing this and living in this fashion, they fail to notice that their municipality is rapidly becoming a vast treeless area, which is changing the climate, reducing the water supply, and destroying life.

Like many towns in the country, Siguatepeque is destroying its woods faster than they can be regenerated. Its authorities and residents have not realized what is happening to them or searched for a solution, with few exceptions, of course, such as San Pedro Sula.

To cite Siguatepeque as just one example, it consumes over 145,000 cubic meters of pine per year for industrial use: more than 70,000-80,000 trees, or twice the volume of any of the country's largest private industries, and from seven to 10 times more than any medium-sized industry. This situation is repeated all over Honduras, with the exception of the protective position maintained in recent years by San Pedro Sula. The majority of the municipal authorities are silent accomplices to this destruction of over seven million cubic meters of useful pine and other wood species, which go up in smoke every year in Honduras. This is 10 times more than the amount consumed by the country's entire lumber industry, for purposes that are more enduring and beneficial for humans.

Despite our good intentions, we would contribute nothing by bringing up problems without providing possible solutions. In the case of Siguatepeque, it seems to us that two obstacles have been posed to the proposed solution.

First, possibly the most important, the lack of genuine interest on the part of the municipal authorities toward solving the problem, because they are, to a large extent, linked to the economic interests in the local bread-making industry; and, of course, there is much ignorance among them.

The second factor which remains, nonetheless, important, is ENEE [National Enterprise for Electric Power] which, as a state enterprise, would never offer either social or economic solutions. Although familiar with the intentions of the project, it took no interest in improving the distribution system in Siguatepeque. The latter is an essential step, since this is a pilot project that would help the industry, if it responded positively, to assess the dimensions of the proposal on a national level.

Furthermore, we believe, and are convinced that the use of the economical electric heater (stove) is bringing very positive results in other countries, such as Costa Rica. Thus, reducing the use of firewood in Honduras, in

terms of its hydroelectric projects whose future is dependent on the presence of woods and their sound management, should take action immediately. Otherwise we, like Siguatepeque, will continue to become a desert, with increasing speed. We must remember that there are many Siguatepeques in Honduras.

Note: Upon the introduction of the project, the national industry cited the possibility of prices that would range between 120 and 150 lempiras for stoves with two to three burners.

Deforestation Causes Silting of El Cajon

90WN0238A *San Pedro Sula TIEMPO in Spanish*
4 Jul 90 p 16

[Text] San Pedro Sula—The entire basin of Lake El Cajon is exposed to an ecological disaster of incalculably tragic consequences for the whole country, due to the burning of land for agricultural purposes and the felling of trees along the shores of the lake in order to use the land for livestock.

This alarming situation was reported to the Honduran Association of Ecology by Dr. R. H. Stover, a chemical biologist who for many years worked in Honduras on tropical research for the Tela Railroad Company.

On 2-3 June Doctor Stover travelled by canoe along the Humuya, Yure, and Sula Rivers, which are the largest sources of water flowing into Lake El Cajon.

During this trip by water Doctor Stover was able to observe how, along the length of the lake and its basin, measuring 94 kilometers of shoreline and covering an area of 8,320 square kilometers, farmers and ranchers have cut down trees, making it possible for land erosion to take place. Little by little, that land slides into the lake becoming sediment which causes floods leading to a loss of life and of millions of lempiras in damage to the economy.

Stover recalled that on 11 July 1986 the Honduran Corporation of Forest Development published an announcement declaring the El Cajon Reservoir Area, which covers 40,000 hectares, to be a "protected forest zone." Nevertheless, Doctor Stover continued, in October 1987, Hugo Mass, an engineer and chief of the Department of Ecology of El Cajon, warned that the ongoing felling of forests endangered the existence of the El Cajon hydroelectric project, in which 1.6 billion lempiras were invested.

In his report Doctor Stover said that along the shores of the lake he saw cattle grazing in at least 15 communities and in six other localities. The land along the shore had been burned to plant corn. Stover indicated: "My estimate is that 30 percent of the lake's basin is now being used for grazing and growing corn."

In his report Stover continued: "the environmental movement of Honduras has grown enormously since 1986. On this occasion I make an urgent and necessary

appeal to the Honduran Association of Ecology and other environmental groups, studying Lake El Cajon as a model of an ecological project subject to tremendous pressures resulting from an uncontrollable population growth. A great deal of damage has already been caused, and it will not be easy to head off the entry of an invading population of landless farmers into the lake's basin, particularly, since their numbers are growing geometrically."

Finally, he recommended to the Honduran Association of Ecology to make an inspection of Lake El Cajon's shoreline from a helicopter to gain a more precise understanding of the real damage being perpetrated by farmers and cattle raisers, despite the fact that the lake's basin has been declared a protected forest zone.

Deforestation Threatens Hydroelectric Station

90WN0238B *San Pedro Sula LA PRENSA in Spanish*
9 Jul 90 p 11

[Text] Tegucigalpa—During the past weekend Rigoberto Romero Meza, director of the Ecology Association, alerted the government to the slow deterioration of the basin of the El Cajon hydroelectric project, due to merciless deforestation.

Romero issued an urgent appeal to those responsible for heading institutions such as the Ministry of Natural Resources, ENEE [National Enterprise for Electric Power], COHDEFOR [Honduran Corporation for Forest Development], and the INA [National Agrarian Institute]. The INA is responsible for permitting farmer settlements on land adjacent to Lake El Cajon.

According to predictions made by the Ecology Association, if the felling of forest trees continues as it has up till now, the useful life of the gigantic hydroelectric project will be reduced to about eight years, which will have a significant impact on the economic, ecological, and environmental life of the country.

The El Cajon Hydroelectric Project, which cost 1.6 billion lempiras to build, has no program established for the maintenance of the basin surrounding it. Its sources of water, such as the Humuya, Sulaco, and Yure Rivers, are deteriorating due to the lack of vigilance and attention by the authorities, who are permitting groups of farmers to settle in the basin.

However, despite the noticeable deterioration of the basin, Romero hopes that by coordinating efforts between the armed forces, institutions involved in agricultural activities, and residents, that some of the deteriorated areas can be saved, despite the fact that this project, from the time of its construction, has had no program for managing the basin as a whole.

NICARAGUA

Environmental Problems, Monitoring Plan Reviewed

90WN0232A Managua LA PRENSA in Spanish
14 Jul 90 p 2

[Text] Dr. Jaime Incer, director general of IRENA [Institute of Natural Resources], is developing a plan to set up a network of environmental inspectorates. The purpose of the network is to organize virtually all of the territory of Nicaragua into ecological districts to control and regulate the preservation of the environment and the use made of natural resources. During the last few months many complaints have been received by IRENA regarding the senseless way in which the environment and natural resources are being destroyed. Such activities have a negative impact on the economic reconstruction of the country, in Doctor Incer's opinion.

Many complaints have been received by IRENA regarding looting, bribery, illicit trade, and all kinds of misdemeanors and attacks on the environment, particularly in connection with marine fisheries and the indiscriminate cutting of timber with chain saws, without any supervision and in open violation of prior regulations of IRENA. As a result the forests are being wiped out, soils are being eroded, waters contaminated, and the wild animal population decimated. All of this has been done in a disorderly and irrational fashion in order to fill a few pockets and for the benefit of interest groups which have been created. The productive capacity of the country is being rapidly destroyed, depleting natural resources and destroying the ecological environment, whose restoration will cost many millions of dollars and require several years for regeneration, according to the director general of IRENA.

Disastrous Situation for Natural Resources

Doctor Incer stated that, for example, during the past three years about 200,000 cuajipal [Central American quadruped] skins have been sold clandestinely, especially in Honduras, which represented a loss to Nicaragua of \$30 million. The loss due to the smuggling of shrimp and lobster still cannot be calculated. As a result, it is necessary to halt the issuance of permits for some time to study the situation affecting those resources.

He also explained that Hurricane "Joan" knocked down a forested area of precious woods worth \$500 million, according to the most conservative estimates. The problem now is that the trunks of the trees are partly rotten or have been burned and cannot be removed without doing further damage to the basin of the Escondido River and silting up the harbor at Bluefields. The harbor would have to be dredged continuously to maintain port activity, affecting onshore marine fishing because of the silting up of coastal waters. However, bringing out the trunks of trees which have already fallen would result in the renewal of the forest, which would grow with primary tree species presenting a great future.

The director general of IRENA said that about 40 years ago the forested area of Nicaragua reportedly covered 60 percent of the country. Now this area has been reduced to 25 percent. Within 15 years there will be no forests or timber in the country, if forest resources continue to be misused in an uneconomic way, as has been happening up to now.

An Effort by the Central Government and Towns

IRENA proposes dividing the country into about 35 ecological districts to begin a program of control and preventive management, in accordance with the concept of regulation for hydrographic basins, since the destruction of land is increasing progressively from the high altitude and mountainous regions to low lying and coastal areas. This has been accompanied by a great loss of soil, water, forests, and wild animals. Since a program of regulation would also benefit agricultural and cattle land, the proposal will be presented to the recently established National Commission for the Environment and Territorial Regulation (CONAMOR). This commission is made up of several ministries and independent government agencies which, like IRENA, also use the soil, water, and forests of the country in connection with agricultural, livestock, forestry, fishing, and rural resettlement projects.

Doctor Incer said that cooperation between municipal governments and autonomous regions and police and customs authorities was very important for the control of trade in continental and maritime natural resources, in addition to the need for establishing an effective program of environmental education throughout the country.

He stated that several countries and organizations are interested in supporting the environmental programs of the Nicaraguan government and providing technical and financial assistance for the installation of an ecological network. In such a network technicians would work who are specialized in the control of erosion and water contamination, the collection of water, the development of land and forests, fisheries, national parks, ecologically oriented tourism, and other aspects involved in the conservation of the environment within the framework of sustained production.

No Good Economy Without Good Ecology

On the basis of the view that the economic development of Nicaragua can be sustained, Doctor Incer considers it necessary to regain the productive capacity of the soils and waters of the other environments and natural resources of the country. For that reason IRENA will try to obtain international support for establishing a network of ecological inspectorates to carry on the following actions in a systematic way:

a) Patrol and provide preventive management in existing river basins, in accordance with their potential.

- b) Control the process of soil erosion and the loss of water both in quality and quantity.
- c) Control the deforestation, burning off, and extraction of forest products in unauthorized areas.
- d) Manage and conserve productive, ecological environments, especially in river estuaries, forest reserves, national parks, reservoirs, and lagoons.
- e) Regulate hunting and fishing activities and the collection and extraction of wild animals, plants, and their products.
- f) Control the destruction and contamination of coastal, inland lake, and river environments and regulate the misuse of their resources.
- g) Control activities and products which contaminate the environment.

Environmental Control and Education are Necessary

Finally, Doctor Incer stated that the Ecological Inspectors will watch over the implementation and use of regulations, licenses, and concessions. With the support of the relevant authorities they will confiscate products

which are illegally obtained. In cases which merit such action they will confiscate or stop equipment and vehicles caught in the act of extracting or processing the illegal and irrational sale of natural resources, as well as the destruction and contamination of ecosystems declared significant for the social and economic development of the country, in addition to those actions which do not respect the laws, decrees, and regulations on this subject.

IRENA will also attempt to promote environmental education, both on the urban as well as the rural level. It will promote relations with municipalities and local, environmental groups for the protection of those natural environments which are considered important for health, education, tourism, and the particular economy of each locality.

Doctor Incer concluded by stating that only by halting the destruction of natural resources and the environment, resulting from ignorance or the greed unleashed over the past 20 years, will Nicaragua be able to survive during the remaining years of the 20th Century and begin a true reconstruction of the country after the year 2000.

BANGLADESH

Minister on Contents of Draft Environment Policy

90WD0496 Dhaka THE BANGLADESH OBSERVER
in English 8 Jun 90 p 7

[Text] Mr. Zafar Imam, minister for forests and environment, told the Jatiya Sangsad on Tuesday that a draft national environment policy had been prepared for preservation of the country's environment and protection of ecological balance. The main areas of environmental violations have been identified, he added.

Replying to a question from Mr. Mosharraf Hossain from Luxmipur, the minister said that the major programmes under the draft national environment policy includes massive afforestation programme in the country's northern and coastal areas and spread of social forestry schemes.

A total of 1,000 polluting industries have been identified who have been asked to install equipment for corrective measures, the minister said.

Samples of ground water and river water will be collected for necessary laboratory tests and survey will be undertaken for Environmental Impact Assessment (EIA) in urban areas and industrial zones to ascertain the extent of atmospheric pollution, the minister told the House.

The killing and export of wildlife has been banned and relevant departments have been requested to extend cooperation relating to environmental protection, he added.

As part of creating environmental awareness, the government has launched publicity campaign through involvement of government and non-government organisations. Environmental subjects have been included in the curriculum of primary and secondary education to impart environmental education, the minister said. Bangladesh has also expressed its solidarity with other countries in the regional and international forums regarding global environmental disasters.

Ershad Inaugurates National Environment Seminar

90WD0498 Dhaka THE BANGLADESH OBSERVER
in English 2 Jun 90 pp 1, 10

[Excerpt] President Hussain Muhammad Ershad Friday said that Bangladesh attached the highest priority to the restoration and preservation of environmental and ecological balance, reports BSS.

We are determined to participate in the dedicated endeavours of the environmentally conscious world to arrest environmental deterioration and further ecological imbalance," the president said while inaugurating a national seminar on "environment and development" in Dhaka.

President Ershad said Bangladesh is also consciously trying to identify the causes and sources of environmental pollution and adopting measures for preventing future pollution. The people of Bangladesh have joined hands with the world in their determination to leave behind a better world for the future generations.

Jointly sponsored by the Ministry of Environment and Forest, United Nations Development Programme and the United Nations Environment Programme (UNEP), the inaugural session of the seminar was also addressed by First Lady Begum Roushan Ershad, Minister for Environment and Forest Zafar Imam, the visiting Executive Director UNEP Dr. Mostafa K. Tolba, Additional Secretary in-charge of the Ministry of Environment and Forest Azizul Huq and Resident Representative of the UNDP Mission in Dhaka Charles Larsimont.

President Ershad received the United Nations environment award for his outstanding activities in the protection of environment from the UNEP Executive Director at the session.

President Ershad said a healthy and conducive environment is a must for achieving a cherished goal of better social and economic existence and added "I have time and again expressed our eagerness to provide the 110 million Bangladeshis inhabiting thousands of villages a clean, pollution-free and prosperous environment. [quotations as received]

He said environment and development are complementary. Our resources for development are modest and we have got to plan our development strategies in a manner helpful to keeping our environment free from pollution.

In this connection, President Ershad recalled that a system had already been introduced for awarding permission for setting up of medium and large scale industries after carefully ascertaining their impact on the environment.

Scrutiny of environmental implications have been made compulsory before approval of proposals for setting up industries and developmental activities, he said.

First Lady

First Lady Begum Raushan Ershad said that Bangladesh was on the frontline of the battle for protection and conservation of environment and improvement of the quality of life of its teeming millions.

The First Lady was addressing the inaugural session of the national seminar on environment and development organised by Environment and Forest Ministry, UNDP and UNEP at the International Conference Centre on Friday.

The First Lady said the country's problems were too many but resources were scarce and as our options were few decisionmaking was often difficult for us.

She said the deteriorating environment, the shrinking resources bases, and ever multiplying problems were imposing increasing premium on our development efforts.

IRAN

Environmental Protocol Signed With UN

LD1308162590 Tehran IRNA in English 1459 GMT
13 Aug 90

[Text] Tehran, Aug. 13, IRNA—A five-year cooperation protocol was inked between Iran's Environmental Protection Organisation and the United Nations Development Programme (UNDP) here today.

According to the protocol signed by the head of the organisation Dr. Hadi Manafi and UNDP coordinator in Iran Per Janvid, the U.N. agency would provide the Islamic Republic the services of its experts.

It also stresses that three UNDP experts will attend a seminar on environment and development, to be held here March 4-6, 1991.

Dr. Manafi told IRNA that the imposed war had harmful effects on the country's environment and ecology, "ruining cities, villages, forests, pastures and irrigation networks, changing water courses and thinning soil, in addition to chemical contamination and urban pollution."

He said the seminar aims at using experiences of other countries in developing and reconstruction.

Janvid termed UNDP an important U.N. agency with 112 member states, providing consultation services and cooperation in the fields of agriculture, afforestation, environment, industry and foreign trade. In certain cases, UNDP gives some financial aid, he added.

"We have 40 projects under way in Iran, one third of them related to agriculture, fisheries and afforestation, a third to meteorology, foreign trade and transportation, and the rest to various other industries," Janvid said.

He said that one of the biggest UNDP projects in Iran is cooperation in setting up a pharmaceutical factory equipped with the latest technology.

JORDAN

Reports Reveal Pollution Effects on Citizens, Towns

JN1308122290 Amman JORDAN TIMES in English
13 Aug 90 p 3

[Text] Amman(J.T.)—The Environmental Research Centre (ERC) at the Royal Scientific Society (RSS) has published three reports about pollution of the environment and its effects on people following surveys and

studies conducted in Amman, al-Hashimiyah near al-Zarqa', and the Southern port city of al-'Aqabah.

The reports reveal new facts about the environmental situation in these three areas and provide a number of recommendations.

The first of these reports, which took four years to compile, was about fumes emanating from industrial and residential areas in Amman.

The report, which compared the results of the survey to the situation in other parts of the world, was financed by the Canadian International Development Research Centre, according to the RSS.

Last February the RSS said that monitoring of air in and around Amman had revealed heavy pollution of the atmosphere, especially around the city centre. The city centre is usually congested with traffic.

The report said that the "downtown area of Amman is surrounded by mountains and the heavy traffic day and night and all year round causes a great deal of pollution. [quotation mark as published]

The report said dirt roads and unasphalted streets in some areas caused the saturation of the atmosphere with dust. The report also cited building construction as a cause for the dust in the air.

The ERC's second report, which took a whole year to compile, focused on the spread of hydrogen sulphide in populated area near the Jordan Petroleum Refinery and al-Hashimiyah district of al-Zarqa'.

The Higher Council of Science and Technology supported and financed the study and the analysis of pollution in the air in these areas in 1989 and 1990, the statement said.

It said that special attention was focused on the effects of polluted air and gas on human beings in the populated areas.

The third report dealt with phosphate dust which rises into the air during the loading of ships with phosphate in al-'Aqabah. The dust causes "terrible pollution" to the atmosphere, it said.

The report contained results of analysis of samples of the flying dust collected at different times during the year to determine the amount of pollutants.

According to the statement, prepared at the request of the Jordanian Phosphate Mines Company (JPMC), copies of the report are being distributed to various concerned institutions.

To support its efforts to protect the environment from pollution, the ERC organised a regional workshop on air pollution in Amman last February. The workshop dealt with air pollution monitoring, standards and specifications as well as means of protecting the environment and dealing with health hazards of air pollutants.

NEPAL

Deforestation Termed 'Alarming', Criticized

90WN0222A Kathmandu THE RISING NEPAL
in English 4 Jul 90 p 4

[Article by Mukunda Uprety]

[Text] The Forest Land Survey and Statistics Division of the Ministry of Forest and Conservation the other day made some startling revelations that sent alarming signals regarding the tide of deforestation recorded in the past 30 years or so. The country lost its green coverage by as much as 70,000 hectares annually during the years between 1965 and 1979. Similarly vast tracts of forested land was lost every day following the expiry of the trade and transit treaties with India on 23 March last year.

Glimpse

This only gives a glimpse of the rate of forest depletion in a country which used to boast of thick forest coverage till 30 years ago. The lush forests which presented an enchanting picture of emerald green were an enviable natural resource not many countries could match.

The situation of our greenery began deteriorating particularly in the last three decades as trees began to be felled mercilessly without any effective strategies to replenish what was being lost. Needless to over-stress, forests are a fertile source of food, fodder and fire wood. A healthy balance between felling of trees and tree plantation would have been an ideal answer. But no such consideration was made and soon our forest coverage began to shrink rapidly.

As a result, the phenomenon recorded in some countries who have suffered the loss of vast areas of forest, is beginning to show its first signs in Nepal too. People now have to walk further and further to collect fire wood in the rural areas. The situation in the country is such that more than four-fifths of the people use fire wood as their means of fuel. Over the years, there have been many seminars and speeches and programmes for alternative means of cheap energy but all in vain as not much impact could be made on the vast majority of the people.

Moreover, it would be gross injustice to blame the people for using firewood to light their kitchens. Use of fire wood alone would not have presented such a pathetic sight of our forest coverage today. It was indiscriminate felling of trees and timber smuggling that precipitated matters.

Public outcry notwithstanding, the trend continued for the worse and forests began vanishing. The ecological balance that forests help maintain is well known. There were rules and regulations to prevent illegal felling of trees; there were plans and programmes for afforestation; there were strategies to help encourage tree plantation through the categorisation of forests in "suitable" manner. The result: not much.

The 1980s proved a period of indifference in that while there were big slogans for protecting the forest coverage, things actually deteriorated. If the existing situation should continue, we would have done considerable damage to not only our generation but also eaten away the resources of our future generations.

If such is the prevailing picture, there is, however, some hope that things may not suffer any further. The advent of multi-party democracy has ushered in renewed hopes and expectations in the public mind, and rightly so.

The forest situation today is bad, very bad but not to the point of beyond recovery. What is needed is an effective programme, backed by suitable measures to deal with forest encroachers. In short, a two-pronged strategy is the need of the hour. Firstly, a comprehensive programme for afforestation on a massive scale should be worked out and implemented with utmost sincerity and honesty. Secondly, stringent punishment should be meted out to those not abiding by the rules and regulations pertaining to forest protection and resource tapping.

Even now, over a third of the country's land mass is estimated to be covered by forest areas. Renewed programmes, if implemented with the urgency the situation calls for, should present a considerably better picture in the coming years and decades. This would help secure a better future on this front to the coming generations of the Nepalese people.

At the same time, alternative sources of cheap energy must be probed into with adequate research work and appropriate technology. The past was wasted only with slogans and less work. Visible results should be the priority and working style this time round.

The interim government can be expected to deal firmly with forest encroachers. There have been reports from some parts of the country that illegal trees have been felled in the recent weeks but such instances can be taken more as an exception than a rule. No one can sincerely deny that there has been a marked fall in forest encroachment after the installation of the interim government. The record should be maintained and even improved.

Lessons

To conclude, forests are a rich source of many essential and beneficial things. They should be taken care of with utmost care. Indiscriminate depletion of forests produce serious consequences as the repercussions recorded in other countries should be able to provide us enough lessons on this score. We should draw lessons from the experiences of others and stem the tide of deforestation for the good of the nation as a whole and also, in its own way, for the good of mankind in general considering that environmental problems are not known to recognise national boundaries.

SRI LANKA

Ministry Announces 'Complete Ban' on Killing Dolphins

*BK0208130090 Colombo International Service
in English 1045 GMT 2 Aug 90*

[Text] The Ministry of Fisheries and Aquatic Resources says that there is a complete ban on killing dolphins under the Whaling Act. A program has been launched to inform fishermen about the necessity of protecting dolphins.

Goskompriroda's Vorontsov on Environment as National Security Issue*90WN0235A Moscow SOVETSKAYA KULTURA in Russian No 31, 4 Aug 90 p 3*

[Interview with Nikolay Nikolayevich Vorontsov, people's deputy of the RSFSR and chairman of the USSR State Committee for Environmental Protection, by SOVETSKAYA KULTURA correspondent Armen Gasparyan: "National Security: Reordering of Priorities"]

[Text] [Gasparyan] Nikolay Nikolayevich, in one of your speeches you spoke of the national security system. What did you have in mind? What relation does this have to your agency, which is supposed to protect us from the danger of ecological disasters?

[Vorontsov] I agree that it might sound odd that I, a biologist, am discussing this topic. National security has traditionally implied national defense interests, but the new international policy has brought about considerable changes in priorities, and direct proportional expenditures on defense are decreasing. This is happening not only in the Soviet Union, but also in Eastern Europe, in the NATO countries, and in countries belonging to other defensive military alliances. A second component is what is commonly referred to as state security: the protection of state borders and the struggle against smuggling. Finally, a third component is the protection of the life and rights of citizens...

It seems to me, however, that this definition of national security is already clearly obsolete. The triad must be supplemented.

[Gasparyan] Why?

[Vorontsov] Because we are not fighting any wars. The Afghan venture is over, thank God. Today no one is dying in a war, and I hope no one ever will again. During the perestroika years there has been a change in attitudes toward the issue of the military threat: Whereas in the past people, especially the elderly who had lived through a war, prayed only for the absence of war, now few people are seriously afraid that our country will be attacked. Therefore, the shortage of defense is not claiming any victims. Victims are more likely to be claimed by the surplus of troops, by carelessly and incompetently conducted maneuvers, by a lack of discipline, and what I would call the lack of proper interrelations in the army.

When people talk about state security, they often argue that a single intelligence agent can ruin the efforts of a whole army. But does this argument "work" today?

As far as the maintenance of law and order in the country is concerned, many people are genuinely alarmed: After all, people are dying! We are almost the world leader in traffic fatalities, for example. It is also disturbing that people are dying in peacetime in confrontations with a social or ethnic basis. All of this is true.

Let us compare the number of deaths in all of these spheres, however, and we will see that there have been virtually no losses resulting from border violations. There have been losses in the military sphere, but they have been due to defective equipment and a lack of discipline.

What is it that is responsible for the highest percentage of losses? What are the main causes of death?

First of all, there is the shortage of funds for public health care, the flawed structure of public health services, and poverty.... Second, people are dying from environmental pollution. Third, people are dying from a lack of propriety, including people in the army. All of the drunkenness and fights are the result of our shocking ignorance of the proprieties.

[Gasparyan] In other words, when you speak of national security, you are referring to all aspects of human ecology, and the situation in this area is absolutely alarming. Take, for example, the problem of longevity. It has long been a matter of concern to many international organizations: UNESCO, UNICEF, and the World Health Organization. In our country, however, it was rarely seen as a matter of concern, except by experts in this field. Now we have learned a great deal, and the knowledge has horrified us. Have there been any changes at all in our country in human priorities?

[Vorontsov] In terms of longevity, the Soviet Union ranks 50th among the 52 countries where these statistics are kept. We have seen the average lifespan in Japan, which was never a long-lived country, increase to the point at which Japan is now the world leader in this area. In our country, on the other hand, we have seen a catastrophic increase in the number of children with birth defects. Furthermore, we must not forget that only 10 percent of the new mutations are dominant—i.e., they show up in the first generation—whereas the overwhelming majority of hereditary mutations are recessive and will affect our grandsons and great-grandsons. For this reason, all of the comments to the effect that we are exaggerating the dangers of life in, for instance, the Chernobyl zone—when people say that normal children are being born even there—are unconvincing, to put it mildly. We already know that the rising rate of birth defects in some regions is directly related to the pollution of the environment. In the same regions we find oncological diseases, which are also the result of chromosomal damage, but in this case it is not the sex chromosomes that are involved, but the so-called somatic chromosomes—the cells of the epithelium, lungs, liver, kidneys, etc.

We have so much to say about conversion, but how should it be perceived? I think it should be viewed primarily within the context of all national security interests, including public health, ecology, and propriety.

[Gasparyan] I might just be talking in clichés, but we have always viewed the human being as a "cog" in the machine. His interests have always been obscured by the

interests of industry and defense.... Today we are talking about the redirection of "defense surpluses" into peaceful channels, and what could be more peaceful than ecology? How can conversion be turned into a reality? After all, before we can understand the need to direct the savings on defense spending into ecology, we must have a complete understanding of the state of affairs in the country. We must know what is going on here. Could you give us at least a brief overview of our ecological problems?

[Vorontsov] In my opinion, there has been a great deal of talk about conversion, but no serious conversion program. After all, if one of the plants of the Ministry of Defense Industry which once produced first-class missiles begins producing not just pots and pans, but even refrigerators, this still cannot be qualified as conversion. With this kind of pseudo-conversion, we can only lose the exceptional skills of the design and construction engineers and workers employed at defense enterprises.

Genuine conversion must follow a different pattern. Obviously, parliament must have unrestricted data—I repeat, unrestricted—on the financing of the first three areas of national security: defense and its industry, state security, and internal affairs organs. Besides this, there are indirect costs. Most agencies have separate financing which is not included in the total figure. Parliament must determine which part of the budget should remain directly at the disposal of the Ministry of Defense Industry, the Ministry of Defense, and so forth. It must decide how much the state security system should receive and how much law enforcement agencies should receive. The rest should be redistributed among the other, previously neglected spheres of national security—public health, ecology, and propriety. When these spheres have money, they can act as clients, and then they can decide which areas need a single shot and which need a whole course of injections without any pressure from above.... If the Ministry of Health has money, it can choose its own suppliers and supplies.

The same is true of ecology. When the conversion program was announced, Goskompriroda [USSR State Committee for Environmental Protection] was literally under siege by the general designers of our most respectable firms. There were days when I had appointments with up to three general designers in my office, and each thought that money had been allocated for ecology and that he could get a good contract.

But we have no money. Of course, we could use the old directive method to exert pressure on the Council of Ministers for an order to produce water purifiers instead of submarines.

Once again, however, there would be no competition.

Everything should be done differently. Today we are spending around 9 or 10 billion rubles on ecology, spreading the funds around to various agencies. Each year, however, soil erosion alone costs us 16 billion

rubles. And the total figure is frightening—losses amounting to 43 billion rubles.

I think that even these estimates, however, are only half as high as the real figures. Some people believe that we are losing 90 billion rubles a year. And what is the state allocating for ecology? If we count the cost of reforestation, just 12 billion rubles.

All right, maybe the state does not have this money, but then give us at least part of the funds made available by conversion. Give us, for instance, 5 billion rubles and let us decide what we need first. Should we produce more personal dosimeters for the Chernobyl zone? (Current plans call for the production of 25,000, but I feel that we need 50 million, so that a dosimeter will be as common as a thermometer in each home, and so that each adult and teenager in the Chernobyl zone will have one of his own. At the present rate, the program will take more than 50 years to satisfy our demand for dosimeters.)

If we could get at least 5 billion, we could announce a contest and invite the institutes and design bureaus of the Ministry of Defense Industry to develop the necessary devices. Production quantities would be our own decision.

This is how I imagine the coordination of national security with conversion. We must not simply take money away from military branches and deposit it in a mythical state budget. This will simply ruin existing enterprises. Instead of this, we must give all of those responsible for what should be called the national security system under these new conditions a chance to act autonomously.

The cuts in the army are another problem. Why has no one considered the possibility of enlisting some of the people connected with, for instance, the chemical forces to organize a paramilitary but strictly peaceful civilian emergency response ecological service? Then the people who have been trained to observe military discipline and to operate technical equipment could reach the site of an accident quickly, determine the source of chemical or radiation pollution quickly, and take immediate measures to localize the danger and minimize the damage. The possibility of service in these ecological units as an alternative to military service probably warrants consideration. This is extremely important. After all, we hear reports of accidents almost every day.

[Gasparyan] Accidents are a matter of special concern. They occur everywhere. But ecological teams usually would not have access to territories occupied by military troops. Would accident monitoring and prevention be out of the question in this case?

[Vorontsov] This is true. In this context, law enforcement agencies have extremely serious complaints about our army units. Our inspectors are not allowed to enter those areas.

I was in Murmansk Oblast recently and I saw how weak the monitoring system is in territories occupied by military installations. The Soviet Government and Goskompriroda agencies have virtually no control over much of the oblast. We simply do not know what is going on there. And this is not simply a matter of health hazards. Keeping these areas restricted also gives rise to social problems. People stop trusting the government. They might live right next to a testing ground which is absolutely safe in the ecological sense, but because they know that everything is a secret in our country, they fly into a panic over nothing. These problems could be solved simply by allowing an environmental inspector to conduct an inspection of the testing ground and make his report. Either he will report that everything is in order and that there are no health hazards in the area, or he will report a potential threat which can then be eliminated before it causes problems.

The withdrawal of our troops from Eastern Europe led to the submission of extremely sizable financial claims—some of which might not be valid—in connection with the ecological state of the territory of military bases. In some cases, local authorities have estimated that the cost of all the structures that were built (I repeat, it is possible that a great deal has been overestimated) cannot compensate for the ecological damage. As prominent geochemist B. Moldan, the Czech Republic's environmental minister, said when he was interviewed by THE INTERNATIONAL HERALD TRIBUNE on 25 July 1990, the cost of the ecological clean-up of each of the 150 military bases has been estimated at 2 million dollars on the average—i.e., around 300 million dollars in all. It is possible that our experts will arrive at different estimates, but the evidence of the regrettably careless treatment of nature everywhere is not in our favor. You and I will be the ones who have to pay for this.

And do we act any better at home? After all, this is just a collection of unregulated states within a state. Events sometimes take a shocking turn. We are often upset by the mounting national feelings in the Baltic zone. Last December, however, there was an oil leak on one of our military bases there. The base did not take the trouble to clean up the leak before it reached tragic proportions. As a result, a fire broke out on the river. Local inhabitants watched the river burn. Does this attitude toward nature enhance the prestige of our garrisons?

Here is another example. I sent a letter to Comrade D.T. Yazov, USSR minister of defense, to protest the military district's decision to build a road through the Badkhyz natural preserve. This is a unique preserve, established in 1941 in the wilderness near Kushki. In peacetime, some military engineers got the bright idea that a highway should run right through the preserve. The minister has not answered my letter yet. We ordered the Turkmen committee for environmental protection to prohibit the construction. Incidents of this kind prove, however, that many of our comrades simply have no idea

of how important environmental protection is to the life of the country, its future, and the peace of mind of the population....

[Gasparyan] It would be difficult to argue with anything you have said. All of these are national security issues from the standpoint of the country's internal interests, however. What is the connection between these and the interests of international cooperation in the protection of the environment? What is the world community discussing today?

[Vorontsov] A special UN session on economic cooperation, particularly in reviving the economic growth of developing countries, was held this April and May. At this session and at many other meetings of this kind, such as the conferences of the environmental ministers and foreign ministers of the European countries, the term "stable development" was the subject of a great deal of discussion—not just development, but stable, self-sustained development.

[Gasparyan] What is it, this "stable development"?

[Vorontsov] This is development which is stable in terms of economic and ecological indicators. It is obvious that economic development with no consideration for ecological factors is unstable. The miser has to pay twice. The English delegates at the UN session, for example, said that development which is not stable will lead eventually to total degradation.

[Gasparyan] We often say that economic problems cannot be solved without some concern for ecology. Could the secret lie in the reverse pattern? In other words, maybe we cannot solve ecological problems without economic development.

[Vorontsov] Economic development will be essential. When a state spends 1-3 percent of its gross national income on the needs of nature, it is actually only perpetuating the existence of bureaucratic, fiscal, and other structures. In other words, it can only obtain information—and not even complete information—about what is happening in the country. Obviously, there is not enough money to prevent the degradation of the environment. When a state allocates around 5 percent of its national income for ecological needs, on the other hand, it has the ability to maintain the existing state of the environment. In other words, not enough to improve it, or enough only to improve it on the local level. In our country this percentage would not be high enough, because things have gone too far in some locations.

The resolution of problems connected with ecological disasters and zones of severe ecological damage would require the allocation of over 5 percent. Funds would be needed for the Chernobyl zone or the whole left bank zone of the Ukraine, including the Donbass—Krivoy Rog, Dnepropetrovsk, Dneprodzerzhinsk, Zaporozhye, Mariupol.... This is a huge blotch of pollution! Little is said about this in our country, but these regions are comparable to the Chernobyl zone....

I went to some of these cities. Krivoy Rog..., when I saw it, was simply ruined. It is difficult to even imagine how polluted the city is. Nevertheless, they came up with the idea of building the Krivoy Rog Mining and Enriching Combine (and it is an expensive project—over 2 billion rubles). The USSR Gosplan State Board of Experts' report was negative, but hundreds of millions of rubles had already been spent there. They say it would be a pity to lose this initial investment, but if we continue the project, we will add another 2 billion rubles to the total, and the plan envisages recoupment only after 53 years. I ask you, are we rich enough to build this combine? Especially if it causes the deterioration of an already tragic ecological situation?

The Americans, for example, spent around 2-3 billion dollars to normalize the situation in Pittsburgh, the center of the steel industry. They spent around 17 billion dollars to clean up the Great Lakes. These sums were over and above the 5-percent budget allocations.

Here is an interesting detail. I was talking to Madame Birgitta Dahl, Sweden's minister of the environment, and she said that she had seen "Little Vera" and was absolutely delighted with it. It was the best ecological film she had seen.

It begins, as you know, with a panoramic shot of the city (the movie was made in Mariupol), with endless rows of smoke-emitting pipes and chimneys. The Swedes felt that the joyless life of the heroes portrayed in the film was the result of ecological stress. It was a surprising interpretation of the movie.

[Gasparyan] I have another question. The crisis of faith in our society extends not only to certain structures of public administration or directorates of industrial enterprises which have discredited themselves by telling lies, omitting some details, and concealing many facts, but also to many other government organizations, such as sanitary and epidemiological stations and other inspectorates. Today, it seems to me, it is unlikely that anyone would express complete trust in the experts of the ecological appraisal service or the inspectors of environmental protection committees. How can this trust be restored?

[Vorontsov] It seems to me that people in our country still trust Goskompriroda. We are still a new organization and we have not used up all of the trust that was extended to us.

How can trust be restored? I will begin by going far back into the past. I spent the whole war in an evacuation facility in Yelatma, a village in Ryazan Oblast. I went to school there. We had an old teacher, Petr Petrovich Petrov.... This teacher made a great impression on me. The only time he did not come to school was the day he received the news that his son had died.... He had been a teacher in the local school for the children of the gentry. He began teaching in 1898. I arrived in the village without any books and I began visiting the homes of the local intelligentsia, the homes of local teachers and

physicians, and in each home I always saw barometers and thermometers hanging on the wall, and the Brockhaus and Yefron Encyclopedic Dictionary or the Granat Encyclopedic Dictionary, the volumes of World Geography, and volumes of the Russian classics in the bookshelves. I think that these people, even if they had suffered in the 1930's, had a sense of inner confidence, and they were highly respected, these venerable old villagers.

For this reason, I think that if a young man, who has graduated from the public health department of a medical institute, arrives in a village as a person who is paid an adequate salary and who wants to occupy this position not just for the purpose of getting good sausage from the meat plant he inspects, if he respects himself and does not take bribes but lets the society provide him with this sausage, everything will be different.

Instead of presenting diplomas to future rural doctors or teachers in solemn ceremonies, we should give them a library worth at least a thousand rubles. The absence of this kind of library in the home of the rural doctor or teacher costs the state much more.

[Gasparyan] As far as I know, no one abroad even dreams that an environmental inspector can be bribed. As a rule, these are highly moral individuals who deserve the public's absolute trust. Furthermore, they work in close contact with the public, and all conflicts with businessmen are settled in the courts. And there is never any need for them to make any requests of any chiefs whatsoever. But in our country.... This is, after all, a question of propriety, conscientiousness, and integrity, a question of the professional duty of people. The situation with regard to professional duty in our country is not very good.

[Vorontsov] But this is also connected with the lack of proper relationships between individuals in our country. Where does the profession of, for example, the chief, the man with the briefcase, still exist? In our country. Unfortunately, Goskompriroda agencies were also staffed in line with this principle. It was simply that there were chiefs who had to be placed in jobs. Some of them are committed to the cause and do good work. Others are simply serving time and waiting for retirement pensions. Work in the sphere of environmental protection and in the sphere of cultural propriety should be highly prestigious and respected, and should not be viewed as banishment for transgressions. It should command a high salary. But money is not the only concern, because there are higher salaries in business.... The important thing is respect. Children should take pride in the fact that their father is, for example, a fish inspector, and not because the fish inspector can get extra fish on the sly or sell it illegally.... They should be proud of him because he is a man fighting for the national interest and the interests of nature. And what about the forest ranger? The history of forest rangers dates back to the time of Peter the Great in our country. Forest rangers were highly respected individuals.... Or what about mining engineers?...

[Gasparyan] You have explained what the national security system is. Does this kind of system exist in the developed Western countries?

[Vorontsov] In the FRG, for example, at the suggestion of Foreign Minister H.D. Genscher, 15 civil defense posts were included in the national ecological and meteorological monitoring network. Now the creation of special UN ecological forces—so-called “green helmets” (along with the “blue berets”)—is the subject of enthusiastic discussions. This raises an important point: If international ecological forces of this kind are created, then there should also be internal ecological forces. There is no good reason for us to fall behind in this area.

[Gasparyan] The public is playing a more important role in environmental protection today, but the members of ecological movements are sometimes distinguished by a great deal of noise and passion and few realistic programs. Of course, public opinion is extremely important, but this is a job for experts and professionals, and it requires a precise ecological policy. What are its distinctive features?

[Vorontsov] In general, ecological policy, in contrast to economic policy, is distinguished by its long range. We have to realize this and be emotionally prepared for this kind of prolonged effort. Economic plans are usually discussed seriously for 10 years in advance, but ecological plans have to cover 50 or even 100 years. Discussions of the problem of the Aral Sea, for example, have to address three different sets of undertakings of varying duration. In the first 5 years we would have to solve the problem of a supply of drinking water and uncontaminated food in a variety of ways. These would include the distribution of clean drinking water in plastic bottles, the establishment of temporary water lines exclusively for drinking water, and the use of special distilling and water purification equipment. The second concern would be a supply of ecologically clean produce for the population of the cis-Aral zone, which is suffering from severe pollution by pesticides, high rates of infant mortality and hereditary defects, etc.

Then there would be a middle-range program to convert the drained territories of the Aral Sea, where the silt is mixed with salt and pesticides, into meadowland. This would entail changes in the entire structure of farmland, the entire structure of agriculture in the whole Central Asian region. In other words, we would have to give up the single-crop system of cotton farming, pesticides, and irrigation ditches. This is a barbarous way of using water: It leads to colossal losses of water and the salinization of the soil. We must make the transition to drip irrigation. This will take at least 10-15 years.

Then we have to determine the best way of using the meadowland. They say there is a meat shortage now. If there is a meat shortage, we must find out what Uzbekistan can export, so that it can feed its population with the proceeds from exports. Then we have to restore the

bottomland forests. These are the woods growing along the Amu Darya, the Syr Darya, and all of the rivers.

Finally, the long-range program will cover the next 75-125 years. It will include the restoration of forests on all the mountains encircling the Turana basin. These are forests of walnut and juniper in the Western Tyan-Shan. And juniper takes a long time to grow. This will include the forests of the Western Pamiro-Alay and the forests of Kopetdag. The program will make it possible to trap moisture and stop soil erosion on the slopes.

[Gasparyan] What will happen to the Aral Sea? Is there a concrete plan to save the dying sea?

[Vorontsov] We have announced a contest. The winners will be paid prizes of up to 40,000 rubles, with a grand prize of up to 10,000. What is more, foreigners will be paid the prize money in hard currency. We want to collect many proposals so that we can suggest some new ideas.

I can definitely say that it would be wrong to return to an idea which is still being promoted—the old idea of redirecting the flow of the northern rivers. Why? Because the Tajik Republic is second only to the RSFSR in water resources in the Soviet Union. All of the sources of the Amu Darya are located in Tajikistan. If we use these water reserves intelligently, we can solve the problem. The main reason, however, is that this is an inter-republic, inter-regional problem. It can only be solved within the context of the whole group of Central Asian republics. Besides this, I have to say quite frankly that the program cannot be carried out without some changes in demographic priorities. We can show respect for the traditions of Islam, but without changes in demographic policy in these republics we will not be able to solve any ecological problems. In addition to everything else, we also have to remember that all kinds of social upheavals frequently occur in highly overpopulated regions. We are well aware of this from our observations of animals. We must not be afraid of applying confirmed laws of nature to human society. Yes, these are extremely overpopulated locations, with covert and overt unemployment....

Mistakes in demographic policy, and not only in ethnic policy, particularly the outrageous overpopulation of the Fergana Valley, are one of the causes of social conflicts. We must not forget that all of these situations were artificially created. People were forced to move out of the alpine valleys to work in the cotton fields. There are so many abandoned villages in Central Asia, with the remnants of alfalfa fields and orchards, with abandoned cherry trees with trunks a meter and a half in diameter, from which tons of fruit could be picked....

In short, the resolution of each problem will require a definite policy and the consideration of all factors and all components. Above all, it will require money. We can only hope that the new interpretation of “national security” and of its international and internal aspects will help us get this money. Global security will depend just as much on the ecological security of our huge country as

on its international and military policies. We are part of a single biosphere, in which humanity is only one component. During the years of perestroika we laid the specter of nuclear war to rest, the Berlin Wall came down, and the Iron Curtain disintegrated. Now it is time to consider a new view of global and national security issues. The protection of nature, the protection of human health, and the preservation and development of man's spiritual world are the most important elements of the new view of national security issues.

USSR Deputy Procurator General on Ineffective Environmental Law

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Morning Edition p 3

[Interview with USSR Deputy Procurator General Vladimir Ivanovich Andreyev by Yevgeniy Zhbanov: "While It Is Still Not Too Late: USSR Deputy Procurator General on Rising Ecological Crime and Ineffective Law"]

[Text] The report titled "Imenem Volgi" [In the Name of the Volga] published in IZVESTIYA (No. 165, 1990) served as grounds for the meeting....

But first—about what is real and what is imaginary. For example, if you believe the court statistics of the last four years—those same statistics that suddenly stirred up an outburst of crime—as if precisely ecological crimes are not being committed in our country. And the guilty parties for the Chernobyl tragedy were really not convicted of an ecological crime—but for criminal negligence. And they essentially convicted the "switchmen." And what did we know about ourselves prior to Chernobyl besides the fact that we have many "forests, fields, and rivers" and can man breathe so freely anywhere else? For dozens of years—over the abyss in a lie: "In their country"—industrial monsters have poisoned the air and the water with impunity, and in our country—laws, monitoring, and concern about future generations.... Well and for greater pride, what kind of "cockroach" [mutarakan] of ours could be compared with none other than Hungary or France... in area occupied.

Furthermore, environmental pollution has reached a global phase. There are already 290 natural habitats that cover the territory of seven (!) France's and already 60 million people under the devastating impact of a chemical attack. And all of this is—aside from Chernobyl....

Alas, geographical dispersion shields us from sensing the fact that everything in the world is interconnected and that a society living in a sick environment must be declining. Let us ponder the results of medical research: Today just one of ten male and female senior pupils remains absolutely—physically and psychologically—healthy. Is this not one of the causes of the increase of juvenile crime?

Thus, "In the Name of the Volga." The article concerned the new drainage canal: The "Volga-Don—Diversion,"

this gigantic (up to 40 meter depth) Martian canal to the Tsimlyanskiy Reservoir for the needs of the Rostov AES being built (according to the Chernobyl type, only with 10 power units). It is true that times have changed—society has raised the alarm: The new canal causes (similar to the Karakumskiy) devastating salinization of adjacent lands and its throughput is such that it will begin to exhaust the Volga—and therefore sooner or later will direct attention to the need to reanimate the northern rivers reversal project. It would appear that common sense has prevailed: It is as if the government ceased construction work. But construction is continuing—secretly, using the mining method, without reducing the rate [of construction]....

I requested a reception with USSR Deputy General Procurator V.I. Andreyev, who is conducting oversight of execution of environmental protection law and who had become acquainted with the article in IZVESTIYA. We began our conversation from it.

[Zhbanov] Vladimir Ivanovich, excuse me for my abruptness.... But any embezzler [who embezzles] 10,000 rubles and change can even be deprived of his life in accordance with the law in our country but are not tens of millions of rubles essentially being embezzled before our eyes for the destruction of our environment? Just where is the procuratorial oversight? Why are people not convicted for ecological crimes in our country?

[Andreyev] I can only answer the first question for myself: Of course, it is nonsense. But you must understand the procurator: It is not within our jurisdiction to assess where and what assets are being invested. Our business is monitoring compliance with the law, that is, a legal assessment. Of course, any departmental arbitrariness is also intolerable in connection with the new Volga-Don Diversion Canal. Incidentally, the alarm signals are also reaching the procurator's office. But, unfortunately, as far as I know, the USSR Council of Ministers did not make a direct decision to cease construction and this issue has been transferred to the discretion of local authorities....

[Zhbanov] That is sad. And if this decision does not come down from above? What then?

[Andreyev] Alas, then.... The procurator is practically unarmed. Article 223 is the only RSFSR Criminal Code article in his arsenal: "Pollution of Reservoirs and the Air," yes and that one is limited, I would not even call it environmental protection. The disposition of this article is such that it is practically impossible to use it to influence the course of events prior to the advent of harmful consequences.

[Zhbanov] It turns out like in that militia anecdote: When they kill you, then come and tell us! But ecology is the fate of many lives. And if scientists are predicting disaster?

[Andreyev] As a minimum, there are two predictions. Departmental science attests that there will be no harm....

[Zhbanov] And has a committee of experts been appointed?

[Andreyev] Generally, we are justified in appointing any committee of experts—both in the event a criminal case is brought and by way of oversight. Acute problems are not here—in the quality of the current committee of experts. We frequently end up clashing not only with the organizational and technical, but even with the professional helplessness of experts when they at times are not capable of providing a precise, clear conclusion even about the causes of an ecological catastrophe.

Today, we are sensing the brilliant lack of competent and effective ecological law literally at every step. Existing so-called environmental protection [law] is sooner loud words, a play on the public that is quite convenient for behind the scenes departmental games.

Thus why are people not convicted for ecological crimes in our country? It is not mandatory to put them in jail—I oppose that. But why—in principle? Because even the concept of ecological crime has not been formulated in Soviet law until the present time although it has long since been obvious: Both the nature and the degree of its social threat do not fit into the traditional formula. The definition of ecological damage, which can appear indirectly and on a delayed basis, has not been developed. Comprehension of the source of the heightened danger and the question of consequences are also being seen in a new way.

In short, the extraordinary requirement to protect the living environment from irrational human activity is causing a rethinking of many legal categories. It is impossible to predict what—insofar as we are part of the world community—destructive sanctions for damage to neighboring countries (Imagine, poisonous discharges into [Lake] Ladoga reach the Baltic) will threaten us in the next few years. I think that a concept like negligence that is functioning in criminal law—in the form of criminal overconfidence or carelessness—cannot in ecological law serve as a factor of a certain tolerance, or moreover exclude, as it occurs right now, responsibility until the advent of actual consequences (mass poisoning, fish kill, forest fire, etc.) even if their inevitability has been proven. When a catastrophe erupts, any retributions generally lose their environmental protection sense. Therefore, the first task of an ecological law is to strictly and timely suppress everything that (according to Engels) "contradicts the laws of nature." And meanwhile the snail crawls along....

[Zhbanov] But there is no time to wait. The USSR Supreme Soviet adopted a resolution "On Urgent Measures for the Country's Ecological Improvement." And what is the Union Procurator's Office undertaking?

[Andreyev] Of course, we are not sitting around twiddling our thumbs. The tragedy is that ecological crime has been increasing at a threatening rate during the last four years. The causes? There are a multitude of them. The inertia of carelessness, impunity, yes and technological backwardness, and vulgarly understood cost accounting independence are having an impact. Really purification facilities—are an expensive and prolonged matter at first—some are financial losses and wage losses.... Alas, consciousness of the crisis is proceeding more slowly than its approach.... Is it a coincidence that precisely during those years when society began to sound the alarm about saving Mother Volga that raw sewage draining into it increased by a factor of four(!). In the Sea of Azov—by a factor of three and even in the sacred Baltic—by a factor of 1.5! Total discharges reached unprecedented volumes last year—34 billion cubic meters! Discharges of harmful substances into the atmosphere are simply monstrous—60 million tons! Right now 68 cities are already essentially in an ecological disaster zone. And also add poor-quality food to all of this. How can we count on improvement if the use of pesticides has increased by a factor of four, and the zinc, lead, and copper content in the soil right now already exceeds the maximum allowable concentration by tens to hundreds of times in individual regions.

Unfortunately, the procurator has taken ecological law under special oversight just since last year. Frankly speaking, we still do not know all of the festering criminal "abscesses." For example, just on the approaches we are finding toxic substance burial sites that have been carefully hidden from us. And in Chelyabinsk Oblast, as we discovered, they are in close proximity to drinking water.

But how difficult and extreme could the situation develop if the procurator has only one instrument of opposition—the legal one. We have established additional environmental protection structures. First of all, according to the territorial administrative principle: Difficulties arose with personnel and with our ecological "literacy" but this has been overcome. It was more difficult to overcome the "circular defense" of local ecological nihilism. Then we resorted to the formation of new and unusual structures—they are, so to speak, regional procurator's offices, throughout the zones of greatest threat, for example: The Volga, Urals, etc. The idea consists of first, examining a dangerous situation not by individual fragments but as a whole in all interrelations and second, being completely independent from the influence of local organs and with direct access to the Republic or Union. Yes and experience suggests. For whom does it become better when a single Caspian militia has been pulled apart according to national apartments? The Caspian? No. Only poachers. We proceed from the fact that the ecology of the Caspian is one and therefore the Caspian Environmental Protection Procurator's Office should also be one. According to common sense, this is also in the interests of all republic.

[Zhbanov] That is reasonable. Frankly speaking, I have more often had the opportunity to talk about the conservative qualities of your department but there....

[Andreyev] I appreciate your frankness. This time we really acted efficiently. However, creation of new mobile structures will resolve nothing in and of itself. It is like a new engine but without fuel. And neither emotions nor professionalism will replace the "fuel" for us. Our "fuel" is complete legal support, that is, truth along with responsibilities. And here I am afraid one danger is lying in wait for us—the slowness of legal perestroika. Really if it is dragged out, you, newspaper reporters, will be the first to cast aspersions: Well the procurator created something and crime is increasing. Is that not so?

The ecology is that special case when the procurator must have objective, verified calculations and conclusions prior to providing a legal assessment to an event. At the present time, we have brought nearly 150 criminal suits. The cases are scandalous! However, the criteria of liability are so eroded in the law that the "switchman" most often turns out to be the guilty party. Moreover, departmental experts will not skimp at juggling [the facts] while shielding "their own"—these are distorting mirrors. The paradox: Until the present, the departments that destroyed the forest, water, and soil have not themselves given their own activities an expert assessment. How do we dispute that?

Naturally if we need the truth and not a screen we need to immediately create an independent ecological inspection institute. And it seems to me most appropriately under the Ministry of Justice, according to the analogy of the Institute of Judicial Inspections. It is beyond doubt that the procurator (although at the republic level) must have the right to designate this committee of experts (let us say, construction) prior to the advent of harmful consequences. We are talking about protection of the foremost human rights—to life, health, and a valuable posterity. And this is a bit more important than someone's ambitions or pseudo-economic interests which, let us point out, are most often not without a selfish motive and are attained by abuse of position....

[Zhbanov] Quite recently I and other journalists took part in a conversation with the Lower Saxony Minister of the Ecology. And I posed this question: How will the minister act if his order—to cease production that is polluting the environment above the standard—is ignored by the firm? The Minister did not even understand what I was talking about. I had to repeat the question. He burst out laughing: "Oh... Then the Police!" Everything is simple. But how does our procurator act if some plant pollutes a river?

[Andreyev] First of all this reminds me of a "clear" parallel with our State Committee on Environmental Protection which has generally been cheated out of any authority whatsoever—it just gets down on its knees and begs.... But for today, general procurator oversight is a game of Krylov's cook and Vaska the cat.... As you can

see, the legislator counted on law-abiding citizens: They said, procurator—there is a lot to be s-s-scared of.... But moral perversion is such that citizens are ready to expend greater efforts to bypass the law than to abide by it.

Let us assume that a plant is polluting a river. The procurator sends a threatening message to the director: You are violating the law in the grossest manner, I demand that you etc. Zero attention is paid to the letter. Stop production? Remove him from his position? No, the procurator is only justified to complain to a higher level. No movement whatsoever? Then, still higher. And so on, until your head runs up against the departmental ceiling. It is absurd and humiliating....

[Zhbanov] That means everything remains according to the old [system]?

[Andreyev] Not quite. Right now the economic leader, as a rule, is protected by a deputy's seat in the event of a criminal case. Although in my opinion, it is time to simply remove ecological crimes from the narrow minded sphere and no [parliamentary] seat should serve as immunity.

It is true that lately we have grown somewhat "bolder." Recently a suit by the Ishimbayskiy Procurator's Office against a soda plant won a million rubles for Iskra Kolkhoz whose land suffered. This is the first of its kind. And in the sadly sensational story from the Astrakhan Petroleum Refining Plant (poisonous discharges penetrated living quarters), the local procurator even undertook an attempt to stop particularly dangerous shops. Not for a minute [did he succeed]! He had to enter into a representation with the government. But the plant leaders's impudent opposition startled him most of all: "What are you, unpatriotic?! The country is purchasing grain and our product is hard currency. You want people to die from hunger while we become involved with your cleanup?" It turns out that destroying people with "our own" gas is sort of patriotic. What is this? Provincial discharge of administrative command system dogma: The interests of the state exceed everything, but there? Or maybe, a blind passion for hard currency profits?

Will our ecology not turn out to be legally disarmed under market economy conditions, especially in free enterprise zones? I think we have enough of our own mistakes without also repeating the West's past mistakes. All civilized countries have already experienced the "fever" of enriching themselves at the expense of the environment. The measures required are truly draconian, more precisely, a system of measures which little by little resulted in the modern consciousness that clean technologies are ultimately more advantageous. Right now up to 30 percent of investments are being placed into ecological protection. And in our country? The volumes of state financing seem to have finally begun to increase. During the current five-year plan, two million rubles are being annually allocated for construction of water protection facilities. I will frankly state that these

sums are still quite modest if we proceed based on actual needs. However, even these sums are normally only half spent—they say, it is a nonproduction matter of secondary importance....

I remember that in our country at one time we effusively wrote that there are "no swimming" signs along the shores of Lake Erie in the U.S. But I saw this lake with my own eyes last autumn and the water is very clean.

[Zhbanov] I am curious, how did they handle a water poisoner in the U.S.?

[Andreyev] They do not put them in jail. But they bring them to [financial] ruin. Therefore, over there ecological monitoring inside industry is more strict than state [monitoring]. I am convinced that we should also adhere to a system of very strict property sanctions: You have exceeded the PDK [Maximum Allowable Concentration] by one unit—pay, by two units—pay double. No compromises whatsoever! But the main thing: All of these assets must have one purposeful designation—environmental recovery work. The principle is simple: "Clean" technologies are expensive, but "dirty" [technologies] are [financial] ruin.

[Zhbanov] Yes, but "over there" there are people who fear [financial] ruin and who fear for their property and for their commercial reputation. There is a property owner, a landlord.

[Andreyev] And if there is not landlord or owner in our country, then... it is too bad for the children. Neither the economy nor the ecology are supported at the procurator's office. But if we leave everything to drift, then even my far from complete information is adequate to predict with all responsibility: Irreparable disasters await our country in two to three years.

[Zhbanov] Well, fine, an owner. But how will it be with so-called restricted enterprises? A law has not been written for them. There is no access there for an independent committee of experts.... What kind of monitoring is this? What kind of sanctions?

[Andreyev] But you know, you do not need to rack your brain: It is simpler to look—how is this being done—and for a long time!—in civilized countries. I suggest that our Supreme Soviet has adequate authority [to do this].

[Zhbanov] But nevertheless with hope.... Vladimir Ivanovich, how do you envision the creation of an ecological code? A valuable code: A general and a particular part, and the main thing—standards of direct action—with economic, administrative, and even criminal sanctions. So that there are no reference standards!

[Andreyev] I will state further: I completely share the position of scientists who have been insisting for a long time that ecological law should be divided into a separate branch. Really, if you study it, it is law as a rational alternative to industrial irrationality and it arose at the junction of the most varied legal disciplines and did not originate from any one [discipline]. Unfortunately, our

legal science does not have time for problems of the ecology. As for reference or blanket standards, I (this would not be said by a procurator) see nothing in them except a muddle or a clever ruse to remove from the law what this law also sometimes makes null and void in that same departmental instruction. Of course, we need an ecological code. For now it is necessary.

Restrictions on Export of Natural Resources, Animal Parts Urged

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[Article by V. Krasilov, director of the All-Union Scientific Research Institute of Nature Conservation and Preserve Affairs and professor, B. Orlov, candidate of biological sciences, and A. Filimonov, candidate of biological sciences, under the rubric "From Letters to the Editor": "The Sell-Off of Nature by Cooperatives and State Enterprises Has Assumed Threatening Proportions"]

[Text] Alarming and threatening signals are now coming from all regions. People are demanding that the plunder of our wealth on an unprecedented scale be stopped. Here is just one of the latest telegrams received by the USSR Council of Ministers: The Kazakh SSR Council of Ministers expresses concern about the continuing uncontrolled shipping abroad of the republic's export goods. The cooperative Fenix (Chimkent) sold 800 kilograms of saiga horn to the Beriman firm for 500,000 foreign exchange rubles through the Severnaya Fanta firm. And 10 tons of this precious commodity were exported across the border of one of the Baltic republics. The alarming telegram confirms that even the government of a Union republic does not have the power to stop the horrible plunder of our natural wealth.

In pursuit of hard currency, state and cooperative organizations make multimillion-dollar deals every year to deliver our country's wealth abroad. Valuable types of animals and plants, timber, topsoil, and minerals are being transported abroad. Various legal channels and circuitous routes are used.

Let us cite the most typical examples. Saiga horn, which the Kazakh SSR Council of Ministers telegraphed about, is valued highly on the international market. And so the saiga is threatened with complete extermination; the animals are pursued mercilessly and rounded up by motorcycles. According to data as of 1 December 1989, 32 organizations—15 cooperatives in Kazakhstan and Kalmykiya (where the trade has been officially banned since 1987) and almost as many in Moscow—are involved in supplying horns. Moreover, so are Uzbekintorg, Promvneshtorg, the 40 Let Oktyabrya agricultural firm, and others. Contracts to deliver 300 tons of horn for a sum of 150-180 million dollars were concluded last year alone.

The Feniks cooperative is involved openly in the offense. It has no licenses. Customs barriers are surmounted

using false invoices which indicate the saiga horn being illegally exported is cattle horn. In a number of cases licenses have been issued by the Uzbek and Kirghiz councils of ministers, although the trade is carried out in Kazakhstan. What can we say about cooperatives when in pursuit of hard currency the governments of republics and kray management organs are prepared to plunder their neighbors' and their own resources. Humanitarian purposes are usually used to cover this activity—they say they are obtaining medicines or disposable needles for the people. However, we do not see the medicines, but we do see more and more foreign cars.

It is noteworthy that even enterprises which are located far from the habitat of the valuable animals actively participate in the saiga operations. For example, certain "Tibetan medicinal products" are in the sphere of trade interests of the joint venture Dalso-Pacific. With the support of the intersectoral foreign-economic association Prointern, in 1989 Dalso requested licenses to export ginseng, musk deer spray, and the velvet antlers of the axis deer—for a total sum of about 8 million foreign exchange rubles. "Tibetan medicine" is a cunning maneuver. The point is that all three, ginseng, the Sakhalin musk deer, and the axis deer have been entered in the USSR Red Book as species threatened with extinction. Their use for economic purposes is strictly limited. But when it comes to "Tibetan medicinal products," no formal prohibitions exist.

The illegal trade has undermined the reserves of ginseng, that precious gift of nature. And now the extraction of it must be limited to 50 kilograms a year. Despite a certain increase in purchase prices, a substantial amount of the root has not been prevented from reaching the black market. Foreign trade organizations could give substantial help in the struggle against the offenses, but they themselves are inventing more and more ruses and pretexts for raising the quota. One of them is using immature plants—young plants illegally obtained in the taiga, plants which by custom are not to be touched—which are allowed to ripen. The "matured" ginseng is no longer formally considered wild, and that allows Dalso and Prointern to request and receive one-time licenses for 100 kilograms of root based on "in-house production." In reality this "production" should be considered an especially malicious type of offense.

Disregarding the basic principles of nondepleting timber use has led to a general impoverishment of the Ussuriy taiga. A considerable amount of blame lies on Primorsprom. This organization is now trying to set up a joint Soviet-South Korean venture which will export 1 million tons of lumber a year for 30 years. The drying out of spruce forests serves as the pretext for this—they will disappear anyway, it is said. Specialists know that drying out is a natural cyclical process which helps rejuvenate timber stands, assuming, of course, that the young trees are not disturbed, which is inevitable when such large-scale procurement is underway. And this knocking down of the forest will be how the hasty export of wood will

end, and hence, the animals on which the indigenous inhabitants of the Maritime Region live will die.

The Association of Business Cooperation with the Countries of the Asian-Pacific Ocean Region (created by USSR Council of Ministers Decree No 109 of 27 January 1988 to accelerate the economic development of the Far East) chose a very refined pretext for destroying the taiga. Through the USSR Academy of Sciences, it turned to the Soviet-West German joint venture INTELMA. The association needed a Maritime Region ecology program (it was compiled without the aid of INTELMA long before this request). To cover expenses for "ecological monitoring," the association requested a license to export 100,000 above-plan cubic meters of logs, 50,000 tons of pulp, and 5 million square meters of fiber board—for a total sum of 50 million dollars. The letter about this to the USSR Council of Ministers was signed by the members of the governing board of INTELMA, Academician I. F. Obraztsov and S. V. Yemelyanov. We are talking of "developing and implementing extremely complex and high-tech environmental monitoring coupled with observance of the interests of all participating parties." Obviously, the real concerns of the association and its partners are somehow reflected in the phrase—their own "interests." These are the ones which will be observed. But will nature benefit from that?

Up to now we have been talking of major plunderers and sellers of the country's wealth. But there are many small ones too. Visiting cooperative members buy up snakes in the Maritime Region. Maritime Region kolkhozes sell sea hedgehog roe to the Japanese—up to 8 tons a year, destroying entire populations. There is also something to make a profit from in less exotic krays: cooperative members from the village of Severskaya in Krasnodar Kray obligated themselves to send 12 tons of frogs abroad.

The Soviet-Dutch association Sizif was caught red-handed when it tried to ship out 24 carloads (30 tons each) of valuable soil—chernozem stripped from the Orel region. In exchange Sizif wanted to obtain Phillips radio equipment. These poor excuses for entrepreneurs (like the native rulers who exchanged land for the glass beads they were given) have no idea of real benefit nor of morals.

Too little honesty, competence, and breadth of thinking is the most general reason for the sell-off of our native land. But why is such a thing possible at all? The point is that nature is not protected by our laws. There is still no law on nature conservation and there are fundamental flaws in the Law on Property. It hands over management of the plant and animal world (Section 4, State Property) to Union and autonomous republics, oblasts, and okrugs with an extremely vague indication of the need to observe national interests. Moreover, USSR Council of Ministers Decree No 203 of 7 March 1989 assigns the licensing of exports of natural objects to the governments of the Union republics. And they in turn hand this function over to the ministry of health, the main hunting

administration, and other organizations involved in exploiting natural wealth. Precisely to those organizations rather than to nature conservation organs.

A special legislative act is needed to prohibit "the wolf from guarding the sheep," taking away the right to issue licenses from those who process natural resources.

Special decrees of the USSR government and the governments of the Union republics must also be adopted to make a state ecological review by experts obligatory for any projects, agreements, and other types of activity involving the use of nature and to define responsibility for avoiding this expert review. This must be done immediately. We sent a corresponding proposal to the RSFSR Supreme Soviet, but it still remains unanswered.

Finally, the effectiveness of the law on nature conservation which is now being prepared must be insured. This law should determine the particular jurisdictions of the USSR president (in case of an ecological catastrophe) and the jurisdictions of the Union, republic, and local organs of power in the cause of nature conservation. The procedure for conducting state ecological reviews by experts and for licensing should be put in order.

Ownership of natural resources is a very important issue. The status of resources must be established—international, Union, republic, or local—with the right to dispose of them dependent on that.

The legislative acts adopted recently strengthen the economic independence of regions. But they disregard the need to centralize nature conservation activities. Nature is a whole, it knows no administrative borders. Hundreds of species of animals roam from one republic to another and cross the borders of our country. A biological species is a complex and integrated system. It must be safeguarded as something whole rather than breaking it up into pieces depending on where and in what republic the species is now located. It is not for nothing that migrating birds have been taken under international protection. Special agreements have been concluded to do this. They must be supplemented by interrepublic treaties.

Only such a system of treaties and the corresponding legislative acts will confirm a relationship to nature as the property of all humankind. Without that, effective conservation of nature is impossible.

IAEA Fears New Accident at Chernobyl

LD1908080290 East Berlin ADN International Service in German 0104 GMT 19 Aug 90

[Text] Vienna (ADN)—The disaster reactor in the Soviet nuclear power station installation of Chernobyl is threatening a new danger. Experts from the International Atomic Energy Agency (IAEA) in Vienna fear that there could be a new accident because the concrete covering built around the ruins of the power station at great speed after the reactor fire in April 1986 will not be

able to withstand it. Soviet nuclear scientists are already working on crisis plans, the BERLINER MORGENPOST reports in an item in today's edition which was pre-released to ADN.

IAEA press spokesman David Kyd told the BERLINER MORGENPOST that "in the long term" there is a danger that once again large quantities of fission products from the inside of the Chernobyl reactor could get into the environment. At present the greatest danger comes from the concrete roof of the reactor which was burned out in 1986. Because of the radiation which still exists and the high temperature inside the reactor—estimated at more than 200 degrees Celsius—the concrete is becoming increasingly brittle. Therefore Soviet experts fear that the roof could cave in. The whole concrete covering is also causing the experts concern. This so-called "sarcophagus" around the damaged power station is becoming brittle because of the radiation and the high temperatures. A slow leak of fission products through the porous concrete walls can no longer be ruled out.

Soviet nuclear scientists have developed two plans to seal off the reactor involved in the accident. Either the roof will be strengthened by pouring in a liquid plastic which sets, or a new concrete covering will have to be built around the block. According to Kyd, work is already going on at the Soviet nuclear centers on a model for a "sarcophagus II".

A group of 100 IAEA experts assessing the health consequences of the reactor disaster in the Ukraine have received permission in the past few days to fly over the ill-fated reactor. During this, no damage could be seen externally, Kyd said. During the investigations however, the IAEA commission has come to conclusions that "give cause for concern." For example, the radiation from the burned-out reactor could be detected much more strongly than expected within a radius of 100-300 km. It was nearly as great as at the reactor itself.

Doubts on Chernobyl Safety Refuted

LD2308172990 Moscow TASS in English 1640 GMT 23 Aug 90

[by TASS political news analyst Albert Balebanov]

[Text] Moscow August 23 TASS—The West Berlin BERLINER MORGENPOST published a statement asserting that "a new threat is posed by the Chernobyl Nuclear Power Station." With a reference to unidentified "experts of the International Atomic Energy Agency," the newspaper writes that "a new accident might happen since the entombment hastily built after the fire at a nuclear reactor in 1986 might prove inadequate to the pressure."

TASS interviewed Director-General of the All-Union Research and Design Institute of Power Engineering Vladimir Kurnosov, who is the chief designer of the

entombment for the fourth reactor of the Chernobyl Nuclear Power Station at which the accident happened in 1986. Kurnosov said:

"The assertions of BERLINER MORGENPOST are not in keeping with reality. The stability of the entombment of the fourth reactor has been ensured by strengthening of building structures. An automatic system of monitoring the state of bearing structures has been installed. It was established by constant monitoring that the list and sagging of the entombment does not surpass permissible norms. The cover for the attachment of technological channels ('circuit') is in a stable position."

"The designing of the entombment was unique engineering work. It required extraordinary scientific solutions in conditions of large radiation dosages (about 1,000 roentgen an hour). This is virtually the first experience of the elimination of major accidents at nuclear power stations. It showed that such accidents can be coped with. At the same time it showed that there is a need of a different approach to the safety of nuclear power."

Silayev Comments on Chernobyl Measures

*LD0808203990 Moscow Domestic Service in Russian
1500 GMT 8 Aug 90*

[Text] Problems relating to clearing up the aftermath of the Chernobyl disaster in Russia were at the center of attention during meetings on 7 and 8 August between Silayev, chairman of the Russian Soviet Federated Socialist Republic [RSFSR] Council of Ministers, and the working people of Bryansk Oblast. He was touring Gordeyevskiy and Krasnorgorskiy Rayons.

The program for clearing up the aftermath of the catastrophe requires substantial additions, he noted. Over a period of two years we are planning to provide those who now live on land with a radiation density of over 40 curie housing on uncontaminated territories. Later on, resettlement from less contaminated territories will start. Silayev acquainted them with the RSFSR Council of Ministers' decision on additional benefits for those living in the zone of radioactive contamination.

Second All-Union Conference on Chernobyl Clean-Up Summarized

*90UN2177A Kiev SILSKI VISTI in Ukrainian
10 Jun 90 p 3*

[Article by reporter for VESTNIK CHERNOBYLYA (Chernobyl), M. Khriyenko: "About the Zone With No Secrets (Notes From the Second All-Union Conference on the Results of Eliminating the Consequences of the Accident at the Chernobyl Nuclear Power Plant)"]

[Text] Unlike the previous Conference in November of 1988, this one was unclassified. Almost 400 representatives of the Soviet Union's scientific organizations took part in it. Director of the recently created S&T Center of the Pripyat Scientific Production Association Doctor of

Technical Sciences Ye.V. Senin addressed the plenary seating on the first day of the Conference. He summed up the principal results of the work on eliminating the consequences of the Chernobyl AES accident during the last period and reported on the creation of the S&T center in the 30-km zone and on its structure and objectives.

Then the Conference participants continued their work in six sections. It was noted at a meeting of the first section, "Medico-Biological Aspects of the Chernobyl AES Accident", that four years of investigation make it possible to conclude that the number of diseases of the gastrointestinal tract and the bone and muscular system among those who participated in the elimination of the consequences of the accident has been increasing. In the future not only will this lead to decreased working ability, but it could possibly result in a shorter life span. This is why a paper by M.N. Savkin, laboratory manager, the Biophysics Institute, who was trying to convince the medical section participants that it was possible to reevacuate certain settlements in the Chernobyl zone, generated a sharply negative response.

Forty-five scientific papers were presented at the "Agricultural Radiology" section. Using concrete data, scientists proved convincingly that strontium and cesium content in plants' root systems is increasing every year. Scientists have already done a lot of work to develop a methodology for removing radionuclides from organisms of farm livestock and obtaining clean meat and milk. It was emphasized that rumors of strontium contamination in Dnieper water were strongly exaggerated. Scientists contended that at present, strontium contamination of lands irrigated by Dnieper water is impossible. A lot of speakers warned that exaggeration of the radiation hazard can have a ruinous effect on the condition of cattle breeding in the Ukraine, because ideas had been voiced already on the need to sharply reduce meat- and milk-producing livestock.

How can forestation help the poisoned land? Several papers presented in the "Radioecological Aspects of Consequences of the Accident" section were devoted to this subject. Scientists think that forestation of the 30-km zone will help control migration of radionuclides. Unfortunately, no one has yet developed special intensive forestation equipment that can reliably protect personnel from radiation. The Les [Forest] Program, which was developed in Moscow, has yielded very little in this respect. To correct the situation, scientists proposed to create a Forest Radioecology Department at the Pripyat NPO [Scientific Production Association] S&T Center. They stated unanimously that at present the radioecology direction must develop as a priority line.

Candidate of Biological Sciences, manager of the Laboratory of Ecological Monitoring of AES Regions, the Evolutionary Morphology and Ecology of Animals Institute, USSR Academy of Sciences, I.M. Ryabov reported that wild boar livestock in the 30-km zone increased eightfold and that there are almost 2,000 wild boars now. Rare bird species, in particular two black swan couples,

have shown up. But the number of mooses and roes has decreased, compared to the preaccident period. An increase in poaching is the reason.

Conference participants were alarmed by a report by a group of scientists on the probability of strontium release from the cooling pond of the former 4th power-generating unit into the Prip'yat River. But a real sensation was a speech by Doctor of Geological Mineralogical Sciences, associate at the All-Union Scientific Research Institute of Non-Metallic Mineral Resources, USSR Ministry of Geology, V.O. Kopeykin. He said that in 1987 a large amount of a so-called "ginger" forest was cut down and buried in sand soil. Thousands of cubic meters of pine contaminated with radioactive dust found themselves in primitive sepulchres that had been built without cleaning clay shields. Last year a sepulchre near the Yanov Rail Station was dug up, and marsh water from it was taken for analysis. In addition to strontium, cesium, cerium, ruthenium and antimony, large amounts of plutonium, a radioactive element that is very dangerous for human organisms, were also found in the water.

What is the current situation in the "sarcophagus"? This problem was the subject of a speech by Deputy Head of the S&T Department, Integrated Expedition, Atomic Energy Institute imeni I.V. Kurchatov and Head of the Nuclear Fuel Research Laboratory K.P. Checherov. According to Konstantin Pavlovich, 96 percent of the nuclear fuel remains in the former 4th power generating unit of the AES. Its condition is being controlled. Studies that have been conducted do not corroborate the probability of a chain reaction. But the "sarcophagus" condition does cause anxiety. It is a temporary structure, and it is expected to retain its strength and leakproofness for only a few decades. It seems that the way out is to build a "sarcophagus No 2" that would stay for several centuries. But construction of a colossal weight structure can cause soil movement...

A speech by Prip'yat NPO S&T Center Deputy Director A.S. Miroshnichenko was very sharp. "Our country", Aleksandr Sergeyevich said, "met the Chernobyl tragedy technically disarmed and therefore was forced to plug the fracture in the destroyed reactor room with live people. And today we have to reap the fruits of our technical backwardness and rake out the very last dime from the treasury. Because they understood the extremely complicated situation our people have found themselves in after the Chernobyl AES accident, scientists and designers from Moscow, Minsk, Kiev, Leningrad, Alma-Ata and other cities pledged to develop new special technology and equipment in the shortest possible time. But their effort is like pouring water into sand. The thing is, model units for decontamination of abrasive materials, territories, metal hardware, vehicles, rolled metal stock and pipes, which we received for testing, are wallowing as deadweight and rusting in the open air. New units are on their way, but theirs will be the same fate". The scientist continued: "To see for

oneself the indifference of the Prip'yat NPO management, one should pay attention to the draft of our association's five-year plan prepared for Minatomenergoprom [USSR Ministry of Atomic Energy and Industry]. In this document only R198 million out of R2.5 billion, or approximately 8 percent, is appropriated for all types of S&T work, including 2 percent for new hardware development. Even in industrially backward countries one would not find such ratios. And with this we want to solve successfully problems of catastrophic consequences of the world-scale nuclear accident".

Talking to our reporter after the conference had adjourned, Head of the Department of Radioecological Monitoring, Laboratory of Environment and Climate Monitoring, USSR Goskomgidromet [USSR State Committee for Hydrometeorology] and USSR Academy of Sciences, V.O. Vetrov said: "Exchange of scientific information with our colleagues during the conference will help us develop a concept of the future fate of the contaminated land. We must find ways to close all ways for radionuclides to get into the Dnieper, from which 35 million people drink water. But if all the data that scientists have already collected will be laying in the Prip'yat NPO "remote drawer" without practical implementation, we will resemble passengers of a kid's train that is running on closed-loop rails. We should hope that the recently created Prip'yat NPO S&T Center will be very helpful in the implementation of knowledge that has been accumulated".

... I would like very much to write an optimistic report from the Chernobyl zone, so that the readers of the newspaper and my children in Kiev read it and everybody stops worrying during these hard times. But I cannot do it, because I do not have optimistic facts.

Chernobyl Union Congress Events Summarized

90UN2249B Kiev PRAVDA UKRAIN in Russian
16 Jun 90 p 1

[Article by A. Sokol: "Congress of the Chernobyl Union."]

[Text] On 15 June in Kiev the first All-Union Congress of the Chernobyl Union was held. More than 700 delegates attended, representing about 100 regional organizations and movements.

During the first minutes of the congress there was more than a little joy as old friends met. But there was also sadness: the congress received a telegram informing them of the burial of one of the organizers of the building of the 'sarcophagus'. The hall sorrowfully observed a moment of silence.

One of those who read a paper at the congress, professor G.F. Lepin, informed the delegates that, according to his calculation, of 600,000 people who had worked to clean up after the Chernobyl disaster, approximately 50,000 were disabled, and 5,000-7,000 have already died. And

with cruel injustice—a connection between their illness and the Chernobyl tragedy has only been established for one thousand.

The informal organization that is being born at this congress has set as its goal provision of aid to all those who suffered due to the Chernobyl catastrophe. And it is natural that the delegates to the congress spoke about what they and their comrades are doing for the victims. It was noted, in particular, that representatives of the Chernobyl Union participated in preparation of the latest government decree providing benefits to Chernobyl victims. Local organizations of the union are helping to ensure meticulous medical examination of the victims and their treatment. Steps have been taken to prepare herbal remedies and to create treatment and rehabilitation centers using products of apiculture. Attempts are being made to organize a manufacturing operation to benefit the victims.

But participants spoke more frequently about what has not been done and what needs to be done. The grief of the Chernobyl victims is inconsolable...

The most important goal of the congress, noted its delegates, was to consolidate forces. The Chernobyl Union was born in agony. First it could not find official support, then there was rivalry between two groups: those in Chernobyl and in Moscow. There was discord on the very eve of the congress. A mediating commission was formed, there were endless disputes, and squabbling.

One wants to believe that the delegates will finally put an end to the long drawn-out fuss, select worthy leaders, and determine what concrete steps have to be taken for tomorrow and the near future...

The congress will work on Saturday and Sunday.

New Chernobyl Disaster Investigation Begun

904E0145A Moscow *RABOCHAYA TRIBUNA*
in Russian 21 Jun 90 p 4

[Article by I. Baranovskiy under the "Fact and Commentary" rubric: "The Riddle of the Catastrophe"; first paragraph is source introduction]

[Text] A new and independent investigation of the causes of the accident at the Chernobyl AES [Nuclear Power Station] has started.

It is four years now since horrors raged around Chernobyl. It would seem that during this period each second that preceded the terrible tragedy and each that followed as a result had been carefully analyzed.

And there are foundations for this. It turns out that the design of the RBMK [uranium-graphite channel-type reactor] did not meet safety requirements, and sooner or later the designers' errors should have led to a catastrophe. A specially created commission of Gospromatomnadzor SSSR [USSR State Committee for Safety Inspection of the Conduct of Operations in Industry and

Nuclear-Power Engineering] had to get to the heart of all this. It will complete its investigation by the end of this year. V. Malyshev, chairman of the USSR State Committee for Safety Inspection of the Conduct of Operations in Industry and Nuclear-Power Engineering, comments on this fact:

"In recent years much additional information about the tragic events at the Chernobyl AES have been piling up. The bitter experience was also an experiment; now we know much better how to act in extreme circumstances and what measures to take to prevent a catastrophe such as the one at Chernobyl. This is the reason for creating the commission, which should look into many, many questions: to what extent the detailed design of the fourth power unit corresponded to the norms and the rules for safety, how competently the servicing personnel acted, and the quality with which the operating documentation was executed. Simultaneously, a scientific analysis of this situation is being conducted by USSR Minatomenergoprom [Ministry of Nuclear Power and Industry] organizations.

In general, the causes of the accident were correctly formulated by the state commission. And we have not raised any doubts. Another matter, seldom spoken about—either previously or today—is the fact that had there been no errors in the calculations of the design developers, scientific supervisors, and designers there would have been no tragedy.

Now for a few words about accident-free operation at AES's. The degree of safety of RBMK-1000 reactors (the Chernobyl type) that were built in the 1960's and 1970's especially worries us. As a result of numerous studies, scientists have come to the conclusion that the risk of any kind of malfunction can be greatly lessened where reactor power is reduced to 70 percent of the nominal. And we have already taken this step. I understand, this solution is a conservative one, but it is dictated by safety considerations. We still expect from science new recommendations on further operation of these reactors.

IAEA Mission Begins Work in Belorussia

LD1008093190 Moscow TASS in English 0850 GMT
10 Aug 90

[By TASS correspondent Aleksandr Palchevskiy]

[Text] Minsk August 10 TASS—An International Atomic Energy Agency (IAEA) mission has begun its work in the city of Gomel, a regional centre in Soviet Belorussia, just 150 kilometres away from the crippled Chernobyl Nuclear Power Station.

The main task of the mission is to carry out an independent analysis of the consequences of the Chernobyl disaster and their impact on the population of the affected regions in Belorussia, the Ukraine, and the Russian Federation.

"At the invitation of the Soviet Government, the tragedy's aftermath is being analysed by experts and scientists from 17 countries," Jiri Beranek, co-director of the IAEA mission, told TASS. "They are examining houses, farms, hospitals and facilities throughout the contaminated territory, taking soil and air samples and recording comparative data."

The mission's work is being done in five main directions, which include verifying the decisions taken by the Soviet side in eliminating the aftermath of the disaster and making a comprehensive evaluation of the medical situation.

Physicians will pay attention primarily to malignant tumours, thyroid gland disorders, anemia, and such psychological effects as neurosis and stress.

The results of expert examination will be published at the end of the year.

Foreign Specialists Study Chernobyl Effects

LD0308094590 Moscow TASS in English 0918 GMT 3 Aug 90

[Text] Moscow August 3 TASS—Dozens of foreign specialists are now conducting comprehensive research on the territory of Belorussia, the Ukraine and Russia affected by the accident at the Chernobyl Nuclear Power Station, PRAVDA reports today.

They are implementing the project "The Radiological Consequences of the Chernobyl Accident in the USSR: Analysis of the Effect of Health and the Environment and Evaluation of Protective Measures", which was developed by the International Atomic Energy Agency (IAEA).

The IAEA is temporarily headquartered in Gomel to coordinate actions by international teams. IAEA Gomel office chief Jiri Biranek told PRAVDA that after the six-month programme, a summary report is planned in December. It will comprise the conclusions, assessments and proposals by 100 experts from Brazil, Canada, the United States, Denmark, Israel, Italy, Japan, Britain, Yugoslavia, France and Hungary.

The expenditures during their stay in the USSR are covered by the Soviet side. The USSR Council of Ministers set aside 1.5 million roubles for this purpose. The IAEA took upon itself currency financing.

The specialists are expected to carry out an immense amount of work to study the entire human environment. They will make thousands upon thousands of measurements and tests of human hair and nails, soil samples, water and food. Simultaneously, they will evaluate the clinico-medical consequences of the exposure to radiation.

Biranek said that the commission's conclusions would form the basis for providing U.N. aid to Soviet people.

He said the IAEA hoped to improve health care in the contaminated zone as well as the standard of life as a whole.

Birek said his personal assessment of the situation was that not only radiation but also openly poor medical aid and a clearly insufficient quality and quantity of food caused great harm today.

Ukraine Parliament Wants Chernobyl Station Closed

LD0108183990 Moscow TASS in English 1801 GMT 1 Aug 90

[By UKRINFORM-TASS Correspondent Stanislav Volnyanskiy]

[Text] Kiev August 1 TASS—The Ukrainian Parliament today passed a bill on urgent measures to protect people in the republic from the effects of the disastrous Chernobyl accident.

It demanded that the government take a fundamentally new approach to this task, creating an efficient management system to oversee the clean-up and coordinate related activities by scientific, medical, economic and other agencies.

The Supreme Soviet also instructed the government to work out, by next November, a concept for safe living in contaminated regions and make corresponding changes to the existing long-term programme for dealing with the Chernobyl aftermath.

The parliament, which wants the Chernobyl Nuclear Power Station to be shut down, bound the government to draw up, by year's end, an energy programme that will set a ceiling on the share of nuclear power in the combined energy budget of the Ukraine.

The programme should take account of proposals for a moratorium on developing the nuclear power industry in the Ukraine and prospects for phasing out reactors currently on stream.

Ukraine Supsov Decision on Protection From Chernobyl

LD0108183390 Moscow Domestic Service in Russian 1700 GMT 1 Aug 90

[Text] The session of the Ukrainian Supreme Soviet today adopted a decision on urgent measures to protect the citizens of the Ukraine from the consequences of the Chernobyl catastrophe.

The document points out that 1.8 million of the republic's citizens over an area of 36,500 square kilometers have been subjected to these consequences.

Previous work by the republic's Council of Ministers and its Academy of Sciences in this sphere is deemed insufficient. It has been decided to create a state committee on questions relating to the Chernobyl catastrophe and

invest it with broad powers. The Ukrainian Academy of Sciences has been instructed to form a corresponding research subdepartment. A broad program of urgent measures is planned, particularly to ensure safe living conditions in areas of radioactive contamination and to implement the priority resettlement of 30,000 persons from the most dangerous areas.

There are provisions for the construction of roads in the contaminated areas, the supply of gas to populated localities, the restructuring there of the healthcare system and provision for the production of pure food-stuffs for the inhabitants.

About 17 billion rubles is being allocated for the whole complex of planned measures. The Ukraine is being proclaimed an ecological disaster zone. In this connection, the allocation of land to the enterprises and organizations of other republics is being suspended and organized resettlement into the Ukraine's territory is being prohibited.

Ukraine's Masik Answers Questions on Chernobyl

LD0308181290 Kiev International Service in Ukrainian 1800 GMT 3 Aug 90

[Text] At today's session of the UkSSR [Ukraine Soviet Socialist Republic] Supreme Soviet, Kostyantyn Masik, deputy chairman of the Council of Ministers, replied to deputies' written questions. He started with the question on resettling people from areas affected by radiation and on privileges due to those who suffered from the Chernobyl breakdown. He also announced that an atlas of radioactive pollution in the republic will be published next year.

While replying to the question on whether an investigation will be launched on establishing the causes of the explosion that originated from the design of the reactor, Masik said:

[Begin Masik recording] As you know, an investigation was held, also a trial in Chernobyl, with the station's managers in the dock. As I said yesterday, the state authorities of the union [USSR] did everything possible to find someone of the lowest ranks guilty and not those who are real culprits of the Chernobyl tragedy. One of these is academician Aleksandrov [former president of the USSR Academy of Sciences]. This is my personal view. Whether he will be tried or not is not my affair. [end recording]

Ukraine Bans Nuclear Plant Construction Work

LD0308164290 Moscow Domestic Service in Russian 1400 GMT 3 Aug 90

[Text] After declaring the Ukraine an ecological disaster zone, the republic's Supreme Soviet proved consistent by deciding to halt all work on the construction of new units at nuclear power stations. The ban came into force immediately, that is, on 2 August, the day on which the

parliament adopted its decision. Work on the construction sites is being mothballed for five years.

Kiev Strikers Seek Resolution of Chernobyl Problems

LD1008112790 Kiev International Service in Ukrainian 1800 GMT 9 Aug 90

[Text] The Inter-Party Assembly, which unites opposition parties and groups—with the exception of the People's Movement of the Ukraine and the Ukrainian Republican Party—called upon Kievites to organize an all-city ecological strike of warning today, with demands for the resolution of problems stemming from the catastrophe at the Chernobyl Nuclear Power Station.

This decision was upheld at a several-thousand-strong meeting held in the center of Kiev at the end of July. The strike was declared for 1400 Kiev time and was to last two hours. The city procurator's office officially warned the leaders of the city strike committee against holding the strike. The procurator's office noted that despite the Ukrainian Soviet Socialist Republic Supreme Soviet decision on urgent measures to protect the Ukraine's citizens against the consequences of the Chernobyl catastrophe, outlining a program of action for government organizations, the strike committee was resorting to methods which destabilize an already extremely tense situation.

As I was told this evening by the city strike committee, a strike was held at nine out of the 38 enterprises which had earlier agreed to take part in this strike. I would like to point out that at the time I received this information, reports had not come in as yet from all enterprises.

Also, at the footwear factory, for example, five workshops were on strike; this is almost 500 workers. Three workshops were on strike at the engine works, two at the Arsenal Factory, whereas according to the local strike committee in Kiev, the entire furniture factory was on strike at Brovary, on the outskirts of Kiev, where the administration supported the demands for resolving problems stemming from the catastrophe at the Chernobyl Nuclear Power Station. Meetings were held at some enterprises.

Chernobyl-Related Strikes Sweep Gomel

90UN2556A Minsk SOVETSKAYA BELORUSSIYA in Russian 14 Jul 90 p 1

[Article by SOVETSKAYA BELORUSSIYA correspondent A. Gotovchits: "No Work for Two Hours"]

[Text] On 11 July a new wave of rallies and warning strikes swept over Gomel industries. The plant imeni Kirov, the machine assembly plant, the bearing plant, the radio technological equipment plant, the Gomselmash Association, and others stopped work for two hours that day.

"From 0900 to 1100," says V. Bezrukikh, chairman of the trade union committee at the radio technological equipment plant, "1,500 people were on strike at our enterprise. The city strike committee issued an appeal calling for a two-hour warning strike, and before expressing support for it we conducted shop meetings. As it turned out, the majority of our people backed the workers' demands that the parliaments and governments of the country and the republic and the local authorities try to eliminate the aftereffects of the Chernobyl disaster."

These demands were formulated as early as May at the conference of workers' groups and strike committees. They insist that Gomel be supplied with ecologically clean produce in accordance with medical norms; they expect additional annual health care for parents and children, as well as additional leave and monetary compensation for health risks; they ask that diagnostic centers be opened in the city for regular complete medical check-ups; they want an increase in residential construction; and they want a free ecological zone status for the zone. However, these and other demands have not yet been considered by the governing bodies of either the republic or the country. Even the reconciliation commission mentioned in the Law "On Resolving Collective Arguments (Conflicts)" was not set up. All this has given rise to the new wave of rallies and strikes.

To attract attention to the unresolved problems for a risk-free life in the city, the strike committee organized a "March for Survival" from Gomel to Moscow on 6-7 July. The participants of the March met in the Kremlin with N. Ryzhkov, USSR Council of Ministers chairman, and told him about the tension in the city caused by the accident at the nuclear power station.

A telegram was sent to N. Ryzhkov in Moscow on the day of the strike. It was signed by Aleksandr Bukhvostov, cochairman of the city strike committee, and by L. Sechko, chairman of the City Soviet of People's Deputies. The telegram reads: "Dear Nikolay Ivanovich, the Gomel City Soviet of People's Deputies and the city strike committee have discussed the results of your meeting with representatives of workers' groups from Gomel Oblast, Mogilev, and Bryansk. They feel hopeful and confident that the government of our country will change its attitude toward resolving the problems existing in the areas damaged by the Chernobyl disaster. They are also hopeful and confident that the demands of the workers from the areas around Gomel handed over to you at the meeting have been discussed finally. In accordance with your promise, we ask you to inform us of the official time when Comrade Doguzhiyev, Council of Ministers deputy chairman, will arrive in Gomel. We expect him to consider all the issues mentioned at the meeting, as well as answers to the demands of the workers concerning the cleanup, and we also expect him to meet with the strike committee. We suggest that the

discussion of the workers' demands, with the participation of Comrade Doguzhiyev, Council of Ministers deputy chairman, take place in Gomel on 18-19 July of this year."

Belorussia Appeals to UNEP Over Chernobyl

LD0308095290 Moscow TASS in English 0927 GMT
3 Aug 90

[By TASS Correspondent Vladimir Manvelov]

[Text] Nairobi August 3 TASS—Belorussia has called on the United Nations Environmental Programme (UNEP) to help combat the consequences of the Chernobyl nuclear disaster. Speaking at the second special session of the UNEP governing council, deputy chairman of the Belorussian Committee on Environmental Protection V. Aleshka stressed that the accident at the Chernobyl Nuclear Power Plant was an international disaster, affecting all spheres of public life, science, production, and morale.

Participants in the session listened in silence to the report on the aftermath of the April 26, 1986 Chernobyl Nuclear Plant accident, which released more than 50 million curie of various radionuclides, 70 percent of which were spread over Belorussia.

An area where more than 2.2 million people live was contaminated. The disaster left 20 percent of the farm land and forests unusable.

New long-term effects of the accident are taking their toll on the republic, Aleshka said.

The disease rate is growing, especially among children. More than 35 percent of the children born in 1989 had defects, diseases of the pancreas have increased by a factor of 2, of throat—by a factor of 10, and of the eye—3.

School children and pre-schoolers are dying of cancer, Aleshka said.

The Belorussian parliament has called on the United Nations to declare the republic an ecological disaster zone.

Aleshka praised the efforts of governments, organizations and private individuals to help minimize the consequences of the disaster. He expressed hope that the UNEP will expand international efforts to help Chernobyl victims in line with the United Nations Economic and Social Council July 13, 1990 resolution.

South Africans To Help Clean Up Chernobyl

LD0908214990 Moscow TASS in English 1742 GMT
9 Aug 90

[Text] Moscow August 9 TASS—A group of South African businessmen specialising in environmental technologies visited the Soviet Union from August 2 to 9,

according to a press release circulated by the Soviet Ecoprom consortium today.

Ecoprom invited seven South African business representatives after they offered to take part in efforts to clean up after the Chernobyl nuclear disaster, the statement said.

The Soviet consortium decided to cooperate with South African firms due to the extraordinary problems caused by the Chernobyl disaster, it said.

The group, which included South African Minister of Trade, Industry and Tourism Kent Durr, visited the Ukrainian capital Kiev, the Chernobyl Nuclear Power Plant and surrounding areas.

The South Africans made several proposals on how to improve the ecological situation in affected areas. They said they will donate diagnostic and treatment equipment to a Kiev clinic treating radiation-related diseases.

Under the tentative agreement between Ecoprom and the visitors, South African firms offered to provide technologies and equipment for emergency measures to clean up after the Chernobyl catastrophe. South African banks will back the program with credit.

Soviet and South African business circles also discussed possible bilateral cooperation after the elimination of apartheid in South Africa."

Monsanto Plans for Belorussian Contaminated Areas

*LD1008105490 Moscow Domestic Service in Russian
0800 GMT 10 Aug 90*

[Summary] Representatives of the Monsanto international chemical concern have planned activities in Belorussia's contaminated area. A large sum of money is needed in order to carry out all the work. The Monsanto representatives will present the results of their tests to the United Nations in the hope of obtaining a grant for it.

Actions of Anti-Nuclear Power Movement Criticized

*PM1908172090 Moscow IZVESTIYA in Russian
11 Aug 90 Morning Edition p 2*

[Feature comprising report by IZVESTIYA correspondent V. But, extract from letter from M. Umanets, general director of the Chernobyl Nuclear Power Station Production Association, and A. Illesh commentary: "New Danger for Nuclear Stations"]

[Text] The builders and operators of the Rostov AES [Nuclear Power Station] could not get to work: The roads to the station were blockaded by pickets, our correspondent V. But reports.

...It all began as follows. Many city and rayon soviets of people's deputies, and later the oblast soviet as well,

adopted a decision to stop construction of the Rostov AES. But the final decision on this type of facility rests with the USSR Council of Ministers. It has so far taken no decision. Roads to the nuclear station have been closed off and picketed several times already on the initiative of a regional committee set up in Volgodonsk. The aim of the blockade is to make the Council of Ministers adopt a final decision on ending construction work more quickly.

After the latest picketing action the oblast soviet chairman sent a telegram to N. Ryzhkov requesting that funding and construction stop immediately—public protest is growing! The text of the telegram was published in the oblast newspaper, and, it would seem, should have placated passions. But the regional citizens' committee again applied to the Volgodonsk Gorispolkom [city soviet executive committee] for permission to carry out a picketing action. This was refused...

Nevertheless, about 1,500 men drove to the AES early in the morning. They refused to allow vehicles carrying building materials into the station. Fortunately there were no particular outrages: More than 100 militia workers who had been brought in kept order. They explained to people that their actions were against the law...

In the afternoon an extended session of the gorispolkom was held, at which a telegram from L. Ryabev, deputy chairman of the USSR Council of Ministers, on halting construction of the AES was read out. A proposal that picketing be called off was put to the members of the regional citizens' committee invited to the session. They agreed, and action was called off at the end of the day.

Yet after all, the oblast leaders already knew that the chairman of the RSFSR [Russian Soviet Federated Socialist Republic] Council of Ministers had already requested the chairman of the USSR Council of Ministers by telegram to halt construction not later than 1 September, not to deliver any nuclear fuel there, and to examine the options for supplying the region with electricity... And the Ministry of Nuclear Power Generation and the Nuclear Industry is now determining the procedure and timetable for mothballing the station. But not many people know this. And if the population had been notified of it promptly, perhaps passions would not have reached such a pitch. Possibly the recent unsanctioned action would not have occurred.

There is no need to explain: When a crowd is ruled by emotion, the law is forgotten. But the AES administration remembered it: If we appeal to the courts, the picket organizers will be held responsible for the three-day stoppage. The losses run into millions.

Who will pay this money?

From a letter from M. Umanets, General Director of the Chernobyl AES Production Association:

...I considered it my duty to write to the newspaper in connection with recent critical events. I am talking about the picketing of the operating Khmel'nitskiy AES and the rally held in Kiev at which calls for the immediate closure of the Chernobyl AES were heard.

I am certain that the vast majority of participants in these actions do not know many of the circumstances and are unaware of the whole truth. It is as follows.

Today the collective working at the station consists mainly of people who came here, to the epicenter of the accident, after the tragic events of 1986. They are all fulfilling their duty, and in my view deserve respect at the very least. It is they who go every day into the zone to monitor the destroyed No. 4 power unit and to carry out a technical process on the three functioning units. About 10 percent of all the energy that is generated in the Ukraine today goes into the power supply with their help. And without them, both the very operation of the AES and its safe shutdown are inconceivable.

I do not intend to start campaigning for nuclear power. The people of the Ukraine and their body of deputies have made their choice—the decision for a nuclear moratorium and the closure of the Chernobyl AES has been adopted. This decision provides for the work of a government commission, incorporating scientific and technological forces, to determine a package of measures and acceptable deadlines for the decommissioning of the power units and to ensure nuclear and radiation safety at all stages of the operation.

Today only a considered and balanced approach is possible. The demand for the immediate shutdown of the AES drives us into a corner and pushes us toward catastrophe. What does it mean, a station shut down just before the onset of winter, a station where, in particular, there are 1,600 canisters [kassety] of spent nuclear fuel? The AES is heated mainly from the operating reactors and hence will simply freeze!

Signs are often posted up in buses or streetcars saying: "Do Not Talk to the Driver While the Vehicle Is Moving." But in the case of the Khmel'nitskiy AES (IZVESTIYA reported in No. 197 [15 July] that the pickets prevented the station personnel from getting to work), the driver of the "nuclear streetcar" was physically restrained and his family was threatened! Is it possible in such a case to talk of traffic safety for passengers and pedestrians? The organizers of these violent actions, which do not allow the minimum necessary moral and psychological conditions for AES workers to be maintained, must assume the responsibility for breakdowns, stress, and their possible consequences.

Our Commentary

[Illesh] The situation which emerged immediately following the biggest nuclear disaster of the 20th century—Chernobyl—turned the country's public awareness upside down. From admiring (from a distance) nuclear stations and believing unconditionally (without reasoned argument to back up this belief) that these stations can be built anywhere, even on Red Square itself, we all radically altered our views, horrified by the tragedy. So radically did our views alter that today many campaigners against nuclear power, as events show, present just as much danger as the USSR's not fully modernized AES network or the low-quality equipment still being delivered to these facilities.

The pendulum of admiration and trust has swung toward hatred and complete hostility. This, alas, was an inevitable outcome.

Deceit based on secrecy (or secrecy based on deception of the people) has led to the picketing of stations becoming an almost commonplace occurrence these days. For years on end we were all fed disinformation by the departments that concentrate in their hands all genuine information about the benefits (which are indisputable) and the dangers (which are also real enough) from existing stations and stations under construction. The result of this policy is, on the one hand, the nuclear phobia which has gripped society. On the other hand, the impossibility of properly planning the development of one of the most promising energy sources... And the complete mistrust toward even those experts who today are trying to tell the truth.

It is absurd but true that the people taking to the streets in fear of a repetition of Chernobyl are pushing their neighbors who work at nuclear stations toward a repetition of the catastrophe.

And not just the economy, but, I am sure, the country's political system simply could not withstand a second Chernobyl.

The distrust of our experts' opinion is obvious. Indeed, the experts themselves, because of the structures still in force (departmental affiliation, departmental instructions, and so forth) are not always sincere, and do not always know how and about what to talk to an extremely agitated people. How do they act in the West in these cases? Last year 169,000 people visited the specialized nuclear center in Sellafield—next to a potentially dangerous plant. What made it possible to achieve not nuclear phobia, but a stream of tourists? Here is the opinion of R.J. Cartwright, administrator at this, the biggest nuclear plant in Britain: "To achieve a positive response from the public it is above all necessary to cooperate effectively with the public. The effectiveness of this cooperation is determined by three principal factors—honesty, openness, and activity.

"The concept of honesty requires no explanation. If we, as people involved in the nuclear industry, are honest

when things are not going entirely well for us, then people will believe us even when things are going excellently. If we prove, to ourselves in the first place, that we deserve trust, then others too will be inclined to trust us.

"The second important component of effective cooperation is openness. All too often in the past nuclear industry representatives the world over have spoken to people in a language that they do not understand. To blind people with science is just as bad as deceiving them with silence.

"The third aspect of the problem is an active, energetic standpoint. And it is far more difficult to carry this out than it is to simply confront people. Anyone who occupies a negative position vis-a-vis public opinion can expect only unpleasantness."

...But meanwhile activity is mainly coming from the other side. An activity that is extremely dangerous. The other day a representative of the "Greens" from Rostov Oblast came into the editors' office. In his hands was a scrap of paper with an ultimatum. Briefly, the gist of the demands is as follows: Unless the question of the Rostov AES is resolved literally within days, they are prepared to sit on the rails in order to block off the railroad leading to Moscow...

It is hardly necessary to explain the consequences of such a step.

Yeltsin Visits Bashkir Nuclear Power Station Site

*PM1408092490 Moscow SOVETSKAYA ROSSIYA
in Russian 11 Aug 90 Second Edition p 1*

[Own correspondent M. Merzabekov report: "Meetings With Workers—B.N. Yeltsin's Visit to Bashkiria"]

[Text] Bashkir ASSR [Autonomous Soviet Socialist Republic]—The city of Neftekamsk, one of the youngest and most promising in Bashkiria, was the first in the republic to greet B.N. Yeltsin, chairman of the RSFSR [Russian Soviet Federated Socialist Republic] Supreme Soviet, 10 August. It was no accident that the choice fell on this city. The whole republic's attention is riveted on the Bashkir Nuclear Power Station which is being built here and the safety of which is causing serious fears in the population. A citywide referendum indicated that 99 percent of Neftekamsk's inhabitants say "no" to the nuclear power facility. A similar assessment was given by a social and scientific expert study conducted by the republic's leading specialists. The question of whether or not work should be continued was raised at an extraordinary session of the Bashkir ASSR Supreme Soviet.

It is well known that scientists assess the future of nuclear power far from unequivocally. The deputies will face a difficult task. But, of course, it is impossible not to heed the opinion of the citizens themselves in this.

B.N. Yeltsin visited the construction site, met with workers' and engineering and technical staff collectives, and made proposals about the future fate of the facility,

the study of which will begin at the earliest date. It is planned to speed up the completion of the expert ecological report and to examine the possibility of redesignating the nuclear power station as a gas thermal power station, and in the event of negative results from this, to mothball the facility.

B.N. Yeltsin visited the Bashselmash Association.

Yeltsin on Bashkir Nuclear Power Station

*LD1008200990 Moscow Domestic Service in Russian
1500 GMT 10 Aug 90*

[Text] [Announcer] Boris Nikolayevich Yeltsin's trip around Russia is continuing. The chairman of the Russian Soviet Federated Socialist Republic [RSFSR] Supreme Soviet is now in Bashkiria. Our special correspondent Sergey Omelchenko reports.

[Omelchenko] The chairman of the Supreme Soviet of the Russian Federation was today met by the town of Agidel. This is the first stop in Bashkiria. Agidel is a new town of 20,000 in the northwest part of the republic where the Bashkir Nuclear Electric Power Station is being built. Pretty residential buildings have already been built and a whole series of consumer service enterprises have been constructed. Well, this structure has already been standing for two months. Here, as at the Tatar Nuclear Electric Power Station, there has been a knot of tension and conflict that alarms the whole republic. Prior to Boris Nikolayevich Yeltsin's arrival, both builders and Greens demonstrated with posters, such as "We Are Against Your Nuclear Electric Power Station." Almost 500 million rubles have been invested in construction. The reactor and turbines are ready. Naturally people have fears about their future and their health. Bashkiria can at the moment supply itself with power, but the production of both electrical power and oil products is now falling. Shortages are envisaged and a crisis is possible in a number of years. What can be done? Boris Nikolayevich Yeltsin discussed this problem today with specialists, power engineers, and representatives of Bashkirian public organizations. Then, Boris Nikolayevich spoke to town residents.

[Begin Yeltsin recording] We have now met and discussed what to do. After the conference we exchanged opinions and preliminarily put forward these three proposals. The first: In two months time, the Ministry of Power Engineering should appropriately provide and present all documentation on the ecological examinations, something which has not yet been finished. This is so all the documentation is at hand and there are no claims or questions in relation to this. Second, the planning organizations should try within two months to make a forecast on the project for transferring the station to thermal means, to gas. All the more so as gas is not at all far away. And the third proposal is to consider the serious mothballing of the station's industrial section. Moreover, this mothballing will require the assimilation of around 200-300 million. This means that somewhere, something of the construction needs to be taken to a

logical end. Either this is the foundation or it is being abandoned and so on. A power engineering program for Russia is now being elaborated. We think it will be finished by the end of this year and will be submitted accordingly for approval by the Supreme Soviet of Russia. Today, it was correctly proposed, and I took upon myself the duty of showing the legislative initiative and submitting a proposal that a law be adopted on atomic power engineering in the country. [end recording]

Blockade of Rostov Nuclear Power Plant Ends

*LD0808082190 Moscow Domestic Service in Russian
0500 GMT 8 Aug 90*

[Text] The blockade of the Rostov Nuclear Power Station has ended. The regional civilian committee has stopped the blockade of the construction work which was initially supposed to be conducted until 9 August. What caused the intentions of the committee to change? A letter from Silayev, chairman of the Russian Soviet Federated Socialist Republic Council of Ministers, and Ryzhkov, chairman of the Union Council of Ministers, read yesterday at a meeting of the Volgogradsk Town Executive Committee. Taking into consideration the tense situation surrounding the construction of the nuclear power station, the Council of Ministers of Russia has decided to stop the construction of the nuclear power station no later than 1 September, and moreover has prohibited nuclear fuel from being taken there.

Kursk Residents, Minister Discuss AES Operations

*PM0608115990 Moscow IZVESTIYA in Russian
2 Aug 90 Morning Edition p 2*

[IZVESTIYA correspondent Vladimir Kulagin report under the "Direct Line" rubric: "Should There Be a Kursk AES?"]

[Text] Kursk—There was a meeting in Kurchatov between local soviet people's deputies, party workers, and leaders of enterprises and organizations located in the Kursk AES [Nuclear Electric Power Station] supervised zone and V. Konovalov, minister of nuclear power generation and the nuclear industry, and leading specialists in the field.

It was no accident that the minister came to Kursk. He was in charge of a representative commission from the sector's staff that spent two days working in Kurchatov. The point is that the residents of this city and neighboring areas have been sounding the alarm for four years now about whether the Kursk AES is safe. The meeting's participants reminded the minister that deviations from the blueprints were permitted during the construction of the first two power units and that the public had become aware of incidents of flagrant breaches of production discipline by the station's personnel, leaks of radioactive water, and local fires at the station's auxiliary buildings.

The people of Kursk are particularly concerned by the fact that station construction is continuing—a fifth power unit producing 1 million kilowatts is currently under construction, the sixth is next in line. The minister produced the following argument: The first two power units can be decommissioned when these two units are started up, and replaced. The public favors not reconditioning a power unit at the end of its service life, and thus the station will gradually close down once its resources are used up.

There are, admittedly, other viewpoints: Yes, build another two power units, but leave all the profits from the work of the AES (roughly 20 million rubles per year) in the budget of the oblast's local soviets and have total control of the electricity that the AES produces, selling it outside the oblast at higher rates and at preferential rates to meet the oblast's own needs.

"Understanding was reached in principle at the meeting on the fact that there is not as yet any substitute for nuclear power in the national economy and life," Vladimir Toyker, a participant in the meeting and head of the Kursk CPSU Obkom [oblast party committee] Socioeconomic Department, said. "The main thing that people want is total glasnost on the state of affairs at the AES and reliable guarantees that its work is safe."

Tomsk Nuclear Reactor Shut Down

*LD2308105490 Moscow Domestic Service in Russian
1000 GMT 23 Aug 90*

[Text] The reactor has been shut down at the Tomsk Nuclear Power Station, the second in the history of Soviet atomic power engineering. The aim of the station's work was for many years known only to a narrow circle of experts and the very existence of the station was kept top secret. The conversion that has begun, our correspondent reports, has ended the 35 year biography of the oldest nuclear power station, which has done its job. With its closure, there will be a noticeable improvement in the ecological situation in the city of 500,000 people and the Ob River water basin.

Conversion Project Builds Power-Generation Windmill

*PM1708120890 Moscow Television Service in Russian
1250 GMT 14 Aug 90*

[From the "Scientific Bulletin" show's "Conversion News" section: Report by G. Klimov and A. Senin, identified by caption]

[Excerpt] [Item begins at time marker 13:15:21. Video shows power station] [Reporter] The direction of the wind can be gauged from these smoke trails from the Pridneprovskaya GRES [State Regional Electric Power Station]. Burning low-grade coal, this station is one of the main sources of air pollution in the Ukraine. And the wind carries the GRES' pollution over Dnepropetrovsk

and far into the surrounding area. [Video shows windmill] But here in the Pavlograd area the same wind is bringing some benefit. It produces electricity. It is here that a wind power unit, manufactured by the Yuzhnoye Science and Production Association with the participation of specialists from the Vetroen Science and Production Association, is being tested. Until quite recently the Yuzhnoye Science and Production Association was cloaked in secrecy. It is the birthplace of space equipment. This unit, manufactured thanks to conversion, contains high-technology equipment and has sophisticated aerodynamic contours. It starts operating automatically given a wind speed of six meters a second. The windmill's developers worked as seriously and responsibly as they used to do when designing space launchers. The work was headed by Doctor of Technical Sciences and Lenin Prize winner Vladimir Ivanovich Kukushkin. [Passage omitted, video ends with interview with Kukushkin]

Report on Health Problems Near Semipalatinsk Nuclear Test Site

*LD2308191390 Moscow Television Service in Russian
1430 GMT 23 Aug 90*

[From the "Vremya" newscast]

[Text] [Announcer] Preparations are under way in Semipalatinsk to hold a day of remembrance for the victims of nuclear tests on 29 August, to mark the latest anniversary of the first blast at the test-site.

[Correspondent G. Sytykh, identified by caption] Over there, beyond the hills, an hour-and-a-half to two hours drive from here, the land was surrendered to a terrible force which has torn it apart. There have been hundreds of Hiroshimas in 41 years. Nearby are defenseless people, animals, the countryside. Radiation recognizes no frontiers. It acts insidiously, by degrees. The situation is made worse by the fact that the first blasts were carried out on land and in the air. I have spoken to residents who have repeatedly seen blinding flashes of light in the sky, like second suns. It is no surprise that in the villages more and more children are being born with deficiencies. Mental disorders and suicides—things which never existed here before—are now more frequent. Doctors are linking this directly to the long-term effects of the test-site. For the second summer running, students and lecturers from the Karaganda Medical Institute are working in Yegindybulakskiy Rayon. They are examining the residents, giving what help they can, and giving advice. [video shows fields, cattle, villagers, medical students; cuts to show K. Kenzhebayeva, captioned as senior lecturer of the department of hospital pediatrics, speaking]

[Kenzhebayeva] It is not just striking, it is also shocking, that at the present time almost every child is anemic. Retarded growth and weight are common here. Every child, from small to grown-up, has chronic inflammation

of the nose, throat, and tonsils. The number of children with congenital developmental defects is growing. They die in early childhood.

[Sytykh] Not only does the population of this suffering rayon not receive any compensation from the state, there is also a miserly level of medical services here. These two converted buildings of the rayon hospital date back to 1928. [video shows dilapidated hospital buildings] Naturally there is no water supply and no sewage system. The premises are cramped. The rayon lacks a surgeon, gynecologist, neuropathologist, and others—there is a shortage of seven specialists altogether. What is more, it is over 300 kms to the oblast center. The new hospital, which is being built out of funds earned from communist subbotniks, has been turned by the contractor, the Oblagropromstroy organization, into a protracted building project, and no one knows when it will be finished. [Video shows new hospital construction site; cuts to show T. Zeyneshev, captioned as chairman of the rayon Soviet of People's Deputies and first secretary of the rayon committee of the Kazakh Communist Party, speaking]

[Zeyneshev] So we would now like this rayon, which is near to the Semipalatinsk test-sites, to receive more help. In this we have the support of the republic government and the leaders of the republic. But in Moscow, the Ministry of Defense and the union government are not listening to this issue, and they don't want to deal with this matter.

[Announcer] After this report had been prepared, it was reported that instructions had arrived in Kazakhstan from the USSR Council of Ministers. They set out additional measures to accelerate the economic and social development of Semipalatinsk oblast, and rayons in Pavlodar and Karaganda Oblasts adjacent to the test-range. This report will give local residents at least some hope for an improvement in the situation.

Expedition Appeals Nuclear Testing Ground

*LD0108191890 Moscow Domestic Service in Russian
1400 GMT 1 Aug 90*

[From the "Polar News" program]

[Excerpts] An appeal to the Supreme Soviets of Russia and the USSR has been adopted by the members of the Russian North [Russkiy Sever] expedition. Noting the northerners' hospitality, the appeal says that the Russian north cannot be considered a zone of peace as long as one of the most lethal laboratories, the Novaya Zemlya nuclear testing ground, is located on the territory of Archangelsk Oblast. The members of the expedition are worried by the absence of reliable information about ecologically dangerous places in the north. [indistinct passage omitted]

General Recounts Chemical Disarmament Progress, Ecological Aspects

LD0408164590

[Editorial Report] Moscow Domestic Service in Russian at 1400 GMT on 4 August broadcasts a 10-minute talk by Colonel General Stanislav Veniaminovich Petrov, chief of the Chemical Troops of the USSR Ministry of Defense, who presents a textbook excursus into the history of chemical disarmament; with the USSR in the role of the protagonist.

In the mid 1980's, the USSR was the first to implement the idea of the new political thinking, and to put into practice the comprehensive concept of constructing a nuclear-free world by the year 2000. This concept is outlined in Gorbachev's statement of 15 January 1986. In 1987, the USSR suspended the manufacturing of chemical weapons.

Chemical security can be insured by concluding an international agreement on banning chemical weapons. With this aim, talks have been held in Geneva for more than a decade already. The talks have yielded some results. In addition, the USSR and the United States have started bilateral negotiations on chemical weapons. In September 1989, a memorandum was signed on understanding existing between the two sides regarding the bilateral experiment on the verification [kontrol] and exchange of data in connection with banning chemical weapons. In 1990, Gorbachev and Bush signed a bilateral agreement on the scrapping and suspension of chemical weapons.

A state program for the elimination of chemical weapons has been drawn up; 18 ministries—including the ministries of railways, of environment, and of health—took part in it. The program envisages the development of ecologically safe operations geared toward the elimination of the USSR's chemical weapons reserves.

Petrov expands on the importance and problem of the environment. He then proceeds to talk about the duties performed by chemical troops: insuring the defense of troops from the chemical or nuclear weapons used by the enemy, and radioactive intelligence. Petrov proceeds to praise the performance of the chemical troops when eliminating the consequences of the Chernobyl accident.

Public Committee Takes Control of Udmurt CW StorePM0208145990 Moscow IZVESTIYA in Russian
30 Jul 90 Morning Edition p 2

[Correspondent Alyans Sabirov report under the rubric "Direct Link": "Pickets in Forbidden Zone"]

[Text] Kazan—A public committee in the Udmurt city of Kambarka has taken control of a chemical weapons store which only recently was top secret.

This installation is now preparing to receive a special U.S. inspection. Toxins produced during the war have long been held here. Although there have not yet been any leaks, the huge capacities are gradually falling into disrepair and storage is becoming more dangerous.

"You can understand people's anxiety," said USSR People's Deputy A. Yastrebov, who has supported the public committee's activity. "Two similar arsenals are situated in my electoral district alone. And Cosmonaut Savinykh in the neighboring district has another three. Today the declassified 'chemicals' threaten no one but their own people. Soon, in September, the USSR Supreme Soviet will begin examining a program for the destruction of these means. I believe that we are faced not just with eliminating chemical weapons, but with endeavoring to utilize them by making use of the resources that they potentially contain in the interests of the national economy."

Chapayevsk CW Destruction Plant Becomes Training CenterPM2308112090 Moscow PRAVDA in Russian
22 Aug 90 Second Edition p 2

[Report by own special correspondent A. Gorokhov under the rubric "It Was Reported Yesterday...": "The Plant Was Built, But..."]

[Text] Chapayevsk, Kuybyshev Oblast—Without vigorous action now we will be unable to rid our country of chemical weapons stocks. That is the conclusion prompted by a visit to the USSR Defense Ministry facility for the destruction of chemical weapons sited near the city of Chapayevsk, Kuybyshev Oblast, which was initially intended to develop techniques to destroy chemical munitions containing phosphororganic agents.

The plant, with its own residential settlement, was designed to destroy 350 tonnes of chemical agents a year. It has already cost the state 50 million rubles [R], and was built virtually from scratch in three years, but was converted by a USSR Council of Ministers order of 5 September 1989 into a training center for the development of technological processes in inert—let me stress—environments, that is to say, without even the microscopic presence of actual toxic substances, and, of course, for the training of personnel for future industrial enterprises for the destruction of chemical weapons.

"This decision," Colonel A. Garkavenko, chief of the facility, told me, "was taken under pressure from the public of Chapayevsk and nearby population centers, who are worried about the already depressing environmental situation in this part of Kuybyshev Oblast."

In short, without having worked a single moment on combat chemical agents, the Chapayevsk plant was turned into a training center.

The following must clearly be said today. Chemical weapons production stopped in the Soviet Union in

1987, and 40,000 tonnes of them are stockpiled. Some depots store combat chemical agents produced as far back as the end of World War II. American stocks are estimated at 38,000 tonnes. Any delay in starting the actual destruction of these lethal stockpiles, particularly old stock, carries with it a threat which has not yet been really appreciated, it seems to me, by either our or the American public.

"Here 'company secrets' have to take a back seat," observed Candidate of Chemical Sciences V. Sheluchenko, chief specialist on problems of chemical weapons destruction at the USSR Ministry of the Chemical Industry.

It is difficult to disagree with that opinion, particularly as the "period of adjustment" between Soviet and American scientists and military men, as emerges from recent meetings and exchange visits, is coming to an end. This, incidentally, was demonstrated once again by the recent visit to Chapayevsk by a large group of American specialists. The elaboration of procedures for mutual inspections is now under way, and common approaches and acceptable techniques are being sought.

Transcarpathian Oblast Radar Project Mothballed

PM2108151090 Moscow IZVESTIYA in Russian
15 Aug 90 Morning Edition p 6

[N. Burbyga report under the "From Competent Sources" rubric: "Transcarpathian Radar Construction Halted"]

[Text] IZVESTIYA has written on several occasions about the construction of a major radar near the village of Pestryalovo, Transcarpathian Oblast, and the population's protests about this. Here is another report. Construction of the radar has been halted by order of the USSR Council of Ministers and all the facility's installations are to be mothballed.

The USSR Defense Ministry is obliged to recultivate areas of woodland and pasture that have suffered as a result of the construction work. The work of mothballing the buildings and installations and recultivating the land will be paid for with funds allocated by the USSR Defense Ministry for the radar's construction.

At IZVESTIYA's request, Colonel V. Butenko, deputy chief engineer of an Air Defense Forces directorate, commented on this report.

[Butenko] We are obliged to carry out the USSR Council of Ministers' orders. All work on the radar has now been suspended, and the facility's installations are being mothballed.

[Burbyga] Valeriy Vladimirovich, in one way or another the money allocated for the construction of the radar has been poured down the drain. For what purpose will the building be converted?

[Butenko] I think that we need to discuss not so much the material losses as the detriment to the country's defense.

Although outmoded, the station is still performing its tasks. There is a breach in our early-warning system owing to the fact that the United States has taken the "Trident-2" system into its arsenal and put it on alert status.

In accordance with the orders of the USSR Council of Ministers, the USSR Ministry of the Radio Industry, the USSR Defense Ministry, and the USSR and Ukrainian SSR [Soviet Socialist Republic] Academies of Sciences, proposals will be drafted and submitted to the USSR Council of Ministers on ensuring a reliable early-warning system in this area, with an eye to the ABM Treaty of 1972.

[Burbyga] How will the woodland and pastures be recultivated?

[Butenko] We have already embarked on this work. Quarries have been earmarked, soil is being taken into those areas that have been disturbed as a result of the construction work.

Mukachevo Radar Station Construction Halted

LD1308124690 Moscow Domestic Service in Russian
1200 GMT 13 Aug 90

[Text] The construction of the Mukachevo Radar Station has been halted. This is stipulated by order of the USSR Council of Ministers. All the base's buildings are to be preserved. The country's Minister of Defense is required to carry out the recultivation of woods and arable land destroyed as a result of the construction work. This action, a TASS correspondent notes, will defuse the situation in the Transcarpathia Oblast. Its inhabitants are pleased to discover that their voice has finally been heard and their position taken into account.

RSFSR Ecology Body Opposes Zagorsk Toxic Waste Dump

PM0208161590 Moscow SOVETSKAYA ROSSIYA
in Russian 31 Jul 90 First Edition p 1

[N. Bozhendayeva report under the general heading "News": "Plan Scrapped"]

[Text] A plan to set up a facility in Zagorsk for burying and disposing of industrial toxic waste has been discussed by the Russian State Committee for Environmental Protection.

In point of fact this brainchild of the former Ministry of the Chemical Industry would have turned Zagorsk into an industrial dump for all Moscow. The conclusion of experts was unanimous: This construction project cannot be allowed.

Eminent scientists and ecology specialists have said that the establishment of similar centers cannot be tolerated. Enterprises must be made to recycle waste locally.

Yamal Peninsula Environmental Problems Reported

PM0308120590 Moscow Television Service in Russian 0830 GMT 1 Aug 90

[From the "Vremya" newscast: Report by A. Shvetsov, identified by caption]

[Text] [Newscaster] Of late, the unique Yamal Peninsula in the polar region has become the source of a kind of confrontation between various departments on the one hand, and the public on the other. A special commission of experts from the USSR State Committee for Environmental Protection has once again failed to ratify projects or the technical and economic feasibility study for the industrial development of this peninsula.

[Shvetsov] [video shows aerial view of peninsula] Yamal is an amazingly rich area. Its soil contains considerable reserves of hydrocarbons, oil, and gas. This is what has brought about the stormy industrial development of the peninsula.

[V.P. Tsarev, identified by caption, no further identification given] In terms of its complex physical and geographical conditions, the Yamal area is unparalleled in world engineering and geological practice. For that reason untested technologies should not be used on the Yamal Peninsula. No technology tested under industrial conditions is currently available. Yamal has an unstable natural system, and even small violations coupled with technology-related effects may have unpredictable consequences. For that reason the problem of opening up the Yamal area must be tackled very seriously and a tremendous amount of scientific research and industrial work must be carried out before adopting a decision on developing the Yamal area.

[Shvetsov] Unfortunately, despite all that has been said, geologists, construction workers, and gas industry workers have been throwing their weight about for several years now on the Yamal Peninsula, with no particular thought for the environment. [video shows workers entering building] Supplied with ample funds by their departments, they are drilling out deposits and constructing the railroad from Labytnangi further north. [video shows public meeting] The public, deputies, journalists, and nature conservation bodies have actively embarked on protecting the unique natural environment on the Yamal Peninsula and the interests of its indigenous inhabitants. Work has often been suspended. A considerable amount of money is being channeled into providing compensation for the damage incurred. Transport construction workers, in particular, are now putting up housing, along with social, cultural, and public facilities in several national settlements simultaneously. [video shows aerial view of the area] A commission of experts from the USSR State Committee for Environmental Protection arrived recently on instructions of the USSR Council of Ministers. Its findings were unequivocal: The Yamal Peninsula must not be developed as it is being today. The confrontation between the interests of

oil and gas departments under cover of state interests and the true masters of this land continues. One can only hope that common sense will prevail and that the Yamal area will not become lacerated like most of the Tyumen North.

Yaroslavl Facing Water Pollution Problems

PM0808152790 Moscow PRAVDA in Russian 6 Aug 90 Second Edition p 2

[PRAVDA correspondent Z. Bystrova report: "Traces of Green Oil"]

[Text] Yaroslavl—According to the competent opinion of Yaroslavl Oblast Nature Conservation Committee personnel, the oblast center—in other words several hundred thousand adults and children—may be left without drinking water any day or hour now.

It has been established that the "Tekhuglerod" Science and Production Association is to blame for the water supply's being poisoned. The ditch carrying effluent from the enterprise and the neighboring construction materials combine has been found to contain a high concentration of petroleum products. The ditch has been polluted, as have the banks of the Volga. A strong smell assails the nostrils.

PRAVDA's correspondent spoke to G. Gritsuk, chairman of the oblast soviet of people's deputies Ecology Commission.

"What's the matter with the water? That is a question for the specialists," he replied. "At present one thing must be taken into consideration—you can use only boiled water. The situation is that a city with many thousands of inhabitants is situated on two very great rivers—the Volga and the Kotorosl. Yet at any minute it may find itself faced with a disaster. Industrial enterprises are located above the water intake point. The oblast's emergency commission has just been in session. We concluded that this cannot be permitted. The water intake point must be closed."

Yaroslavl urgently needs to create standby sources of drinking water without delay. Including wells. The city cannot live without them. By introducing an economic mechanism for nature use, the oblast Nature Conservation Commission is able to offer financial aid for the city's needs.

...How can we allow ourselves to hear "news" like problems with water from the population? News of this kind is carried by rumor. Where are our point-of-origin and interim controls? Are they not in operation? Despite the existence of wealthy enterprises that receive hundreds of thousands of foreign currency rubles for consumer goods, we still do not have the equipment to organize an automatic system to monitor the state of the environment. Primarily the water and air.

And what about means of notifying the population? Is it really permissible for people to be using poisoned water for hours out of ignorance?

Specific persons are to blame for these acute problems and troubles. The people must know who they are. But the situation as such is so serious that the Prosecutor's Office must investigate everything thoroughly. The accident will be investigated at a sitting of the emergency commission convened by the Yaroslavl Gorispolkom [City Soviet Executive Committee].

TV Report on Yaroslavl Water Pollution Situation

*PM1008084990 Moscow Television Service in Russian
1700 GMT 6 Aug 90*

[From the "Vremya" newscast: Report by Yu. Chernyak, identified by caption]

[Text] [Newscaster] We have already reported the critical situation which has developed at the central water supply station in Yaroslavl. That was at the beginning of the week. We now have the details.

[Reporter] Let me recall that high concentrations of petrochemical products—several times in excess of the permissible levels—were discovered in the main reservoir of the central water supply station. Relatively quickly it was established that harmful chemicals had leaked into the Volga in the vicinity of the water station, where a whole series of chemical enterprises is located.

The utilization of drinking water was immediately suspended in kindergartens, hospitals, food processing enterprises, and residential areas supplied by the central water supply station. Some 300,000 people were without water.

The city emergency crisis management commission promptly localized and rectified the situation. By 1930 hours on the same day the "all clear" was given.

It remains to identify the culprit. We are now on the premises of one of the production facilities of the Yaroslavl Tekhuglerod Science and Production Association, the former carbon factory. The soil on the territory of the plant is saturated with what is known as green oil, used in obtaining industrial carbon, and also with other petrochemical waste products. It is claimed that some 5,000 tonnes of these products are contained in the soil. Purification installations, oil filters, and precipitation tanks were in a state which indicated that leaks of this kind could have occurred at any time. The state of similar installations at neighboring enterprises was not much better.

Is it for the Prosecutor's Office to decide who the culprit is?

[V.A. Izmaylov, deputy chairman of the Yaroslavl City Soviet Executive Committee and chairman of the emergency commission, identified by caption] An investigation is currently being conducted by the Prosecutor's

Office, the Committee for Environmental Protection, the city Hygiene Inspection Station, that is a great number of people. Engineering solutions are being sought to prevent this kind of situation from recurring in the future on the right bank of the Volga.

Estonian Deputy Opposes Phosphorite Development

*LD0608171790 Moscow TASS in English 1702 GMT
6 Aug 90*

[By TASS Correspondent Aleksandr Kharchenko]

[Text] Tallinn August 6 TASS—If the development of phosphorites begins in Estonia, that would be a deal behind the people's back, Pavel Panfilov, people's deputy of the Republican Supreme Soviet, believes.

According to Panfilov, an intention of Lithuanian authorities to start the ecologically-harmful development of phosphorites was evidenced by a statement made in the United States by Lithuanian Deputy Prime Minister Algirdas Brazauskas that under the economic cooperation agreement signed between the three Baltic republics "the Estonians may make good use of phosphorites."

Way back in 1988 the population of Estonia is known to have vigorously opposed the ecologically harmful development of phosphorites. The drive cost former Prime Minister Bruno Saul his position.

An "agreement on economic cooperation between Latvia, Lithuania and Estonia" was signed in Vilnius on April 12, this year, by Estonian Prime Minister Edgar Savisaar and his Latvian and Lithuanian counterparts.

Before signing the document, the Baltic prime ministers had discussed the economic resources of their republics. The remark by Brazauskas about the forthcoming "good use" of phosphorites by the Estonians cannot be accidental, Panfilov believes.

Moldavia Forms Environmental Protection Body

*LD2108195890 Kishinev SOVETSKAYA MOLDOVA
in Russian 4 Aug 90 p 3*

[Text] Resolution of the Moldova Soviet Socialist Republic [SSR] Supreme Soviet on the establishment of the State Department for Environmental Protection and Natural Resources [Gosudarstvennyy department po okhrane okruzhayushchey sredy i prirodnym resursam]:

In connection with the further deterioration in the ecological situation in the Moldova SSR and the need for there to be strict regulation of the utilization of natural resources and effective monitoring of the observance of ecological legislation and for the real independence of the ecological service to be ensured, the Moldova SSR Supreme Soviet resolves:

1. To form the State Department for Environmental Protection and Natural Resources, which is to be directly subordinate to the Moldova SSR Supreme Soviet and

given priority powers on matters concerning environmental protection and rational use of natural resources.

2. To appoint a general director of the State Department for Environmental Protection and Natural Resources on the recommendation of the chairman of the Moldova SSR Supreme Soviet.

3. The commission on ecological matters of the Moldova SSR Supreme Soviet is to draw up a draft law on the State Department for Environmental Protection and Natural Resources, and to submit it to the Moldova SSR Supreme Soviet.

4. The Moldova SSR Government is to provide the material and technical equipment for the State Department for Environmental Protection and Natural Resources and to finance scientific development and nature protection programs.

[Signed] M. Snegur, chairman of the Moldova SSR Supreme Soviet. Kishinev, 28 July, 1990.

Resolution of the Moldova SSR Supreme Soviet on the appointment of the general director of the State Department for Environmental Protection and Natural Resources:

The Supreme Soviet of the Moldova Soviet Socialist Republic resolves to appoint Ion Iliye Dedyu general director of the State Department for Environmental Protection and Natural Resources.

[Signed] M. Snegur, chairman of the Moldova SSR Supreme Soviet. Kishinev, 28 July, 1990.

Polluting Mariupol Radiator Plant Closed Down

LD1908132990 Kiev International Service in English
2300 GMT 18 Aug 90

[Text] According to a decision of the City Soviet of People's Deputies of Mariupol, Donetsk Oblast, the radiator plant has been closed down. Its discharges of lead and other harmful substances were poisoning the air. The enterprise can resume work if transferred outside the city limits and on condition that it become ecologically pure. The deputies also plan to close down several other ecologically dangerous enterprises.

Odessa City Soviet Votes To Close Chemical Plant

PM0608103790 Moscow Television Service in Russian
1700 GMT 2 Aug 90

[From the "Vremya" newscast: Report by S. Fateyev, identified by caption]

[Text] [Newscaster] Of late we frequently hear calls from various quarters demanding that operations at a plant be suspended, a power station be shut down, or a factory be dismantled. These calls are frequently based on entirely justified concern for people's health or the ecological situation. However, on the other hand, can you picture

what would happen to our already ailing economy if enterprises producing essential goods and power stations supplying electricity were to suddenly close down? And what are the workers who lose their jobs to do?

What I want to say by this is that rash decisions must be avoided and that all the pros and cons should be carefully weighed in every specific case. In Odessa, for instance, a session of the city soviet has decided that a major enterprise—the dockside chemical plant—should be closed down.

[Reporter] This difficult decision was adopted virtually unanimously by a session of the Odessa City Soviet. Only two deputies voted against.

[Plant Director V.S. Gorbatko, identified by caption, facing camera] The plant deals with tasks of major importance for the state. And saying that it must be completely closed down is totally wrong in my opinion. Apart from that, a compromise version of the plant need not present any danger, not even a potential danger, to the inhabitants of Odessa.

[Reporter] Let me remind you that the dockside plant comprises a major chemical complex including an ammonia production facility, large-scale storage facilities for ammonia, methanol, and other dangerous substances, a large-diameter ammonia pipeline, and a major mooring line for loading sea-going ships with liquid and dry-cargo chemical goods. [video shows facilities]

[V.K. Simonenko, chairman of Odessa City Soviet Executive Committee, identified by caption] During the first stage the plant must cut back or completely suspend all harmful production. That on the one hand, and on the other hand it must elaborate an outline plan for switching to different output to ensure that there is no danger to life both within the plant's sanitary protection zone and Odessa City as a whole.

Unused Purification Units Allow Volga Pollution

PM0908124590 Moscow Television Service in Russian
0830 GMT 6 Aug 90

[From the "Vremya" newscast: Report by Ye. Nikonov, N. Dmitrov, identified by caption, on poor use of effluent purification facilities]

[Text] Ecology has unfortunately become a permanent topic in our programs, and the reports which we receive from our correspondents are as a rule alarm signals. We have just received one such signal from the Chuvash ASSR [Autonomous Soviet Socialist Republic].

[Reporter] I had been warned that these effluent purification installations had never been used, but somehow I could not believe it. After all, why would they have built them?

The purification installations on the "Progress" Kolkhoz in Cheboksarskiy Rayon were built three years ago. And

all kinds of reports and accounts which were submitted were to create the impression over the past three years that purified water was flowing into the Volga.

[F.Kh. Agisher, head of a section of the Chuvash ASSR State Committee for Environmental Protection, identified by caption] The State Committee for Environmental Protection has checked 133 purification installations, that is essentially all the purification installations in the republic. What was the upshot? To sum up the statistics—some 90 percent of effluent is insufficiently purified. Do you understand what this means—90 percent? To cite another figure—some 30 percent of the installations are in this condition, that is to say, they have never been used. This is money that has been buried.

[Reporter] It is a pity to waste money. Here for instance some 50,000 rubles have been wasted. But there is something that is even worse. Life in our countryside is changing, albeit slowly. The number of streets like this one, with all the urban amenities, so to speak, is increasing. Kindergartens, cafeterias, and hospitals are being built. On the other hand this kind of effluent is produced and it disrupts the ecology of rural life. So a filter was built in the path of this effluent. But, as you have seen, it has never been used. So the effluent is flowing directly into this small river which in turn winds its way toward the Volga. In the Chuvash ASSR alone there are some 2,000 such small rivers. And as we have seen, it is by no means spring water which is flowing into the Volga. The problem is that this is not a unique situation. The picture is much the same in most of the rayons of the Volga basin.

Alas, another kind of filter is needed. It is called responsibility.

Ufa Chemical Plant Explodes; Residents Evacuated

*LD2308150590 Moscow Domestic Service in Russian
1356 GMT 23 Aug 90*

[Text] The following report has just come in from TASS: A new installation producing phenol acetone at the Ufa Synthetic Alcohol Works has blown up during start of work. Despite the efforts of firemen, the fire burned all day. As a result, 25 people have received serious burns and injuries. Eleven of them have been taken to the republic's burns center. Doctors are worried about the condition of two people. Water supply taps have been turned off in residential houses, and enterprises producing foodstuffs have been brought to a stop. Phenol has got into the River Ufimka, from which water is taken for the needs of the city with its million-strong population.

Turyanov, Bashkiria's minister of public health, has said that residents of Novyye Cherkassy have been urgently evacuated. It is situated 15 km from the works. The wind has carried dangerous products of combustion and hydrocarbons in its direction. Signs of phenol poisoning have been observed in some firemen and people who

were situated close to where the explosion happened. The residents of Blagoveshchensk, in the direction of which the wind might turn at any moment, have been warned of the possible danger.

The causes of the incident will be established by a special commission.

Ufa Water Supplies Cut After Accident

*LD2408120190 Moscow TASS International Service
in Russian 0928 GMT 24 Aug 90*

[By correspondent Raul Turkhvatullin]

[Text] Ufa (Bashkir ASSR, Urals) 24 Aug (TASS)—Reconstruction work has begun at the synthetic alcohol works, where an installation producing phenol acetone blew up on Thursday. An emergency commission has been set up in the Ufa City Soviet, in which Soviet and trade union staff, leading specialists of medical and nature preservation institutions are part. By their decision, today has been declared a non-working day for most enterprises and institutions in the southern part of the city.

According to the latest information, after the explosion 110 people were hospitalized. Most are firemen who took part in putting out the fire which raged for over five hours. In the opinion of doctors, the condition of three people is giving cause for serious concern.

Two-thirds of the city, which has a population of one million, are without water today. The city's water intake has been turned off—a whole blend of various chemical mixtures was washed by the foam of dozens of fire engines throughout the whole day from the territory of the petroleum chemical works into the River Ufimka, which supplies the city with its drinking water.

Clean drinking water has been brought efficiently in special tanks to bakeries and other enterprises producing foodstuffs, and the transport of produce from other regions of the republic has been organized. All medical institutions and first aid centers have been switched over to working in emergency situation conditions. Four thousand patients are being evacuated urgently from Ufa hospitals to outside the city limits.

"This is not the first such accident in Ufa," Aldzhet Turyanov, minister of health of the Bashkir ASSR, reminded the TASS correspondent. "At the beginning of April, untreated drainage waters from the Khimprom Association, which produces herbicides and is situated next to the culprit of the present accident, got into the city's water intake. Almost two-thirds of the inhabitants of the city were in a disastrous situation then—for a long time they used drinking water which was contaminated to a high degree by phenol and its derivatives. Through the negligence of the leaders of the enterprise, people were told of what had happened only on the third 24-hour period after streams of poison, causing acute illnesses of the kidneys, liver, and cancer, had been

poured out of store-houses flooded by spring-tides. But the lesson has not been learned."

Inadequate Water Purification Installations in Chuvashia

*PM1708115990 Moscow Television Service in Russian
1430 GMT 13 Aug 90*

[From the "Vremya" newscast: Report by Ye. Nikonov, identified by caption]

[Text] [Newscaster] The subject of ecology has unfortunately become mandatory in our program. The material that we receive from our correspondents is often reminiscent of disaster alerts. Here is one of the latest alerts that the editorial office received from Chuvashia.

[Nikonov] [video shows purification installations] However I was warned that none of these purification installations worked, I still did not believe it. Things had, after all, been built here. The purification installations at the Progress Kolkhoz [collective farm], Cheboksarskiy Rayon, were built three years ago and reports and documents have been giving us the idea for three years now that clean water is flowing into the Volga.

[F.Kh. Agishev, Chuvash ASSR [Autonomous Soviet Socialist Republic] State Committee for Environmental Protection Department head, identified by caption] We at the State Committee for Environmental Protection have today monitored and surveyed 133, that is, virtually all the purification installations in our republic. What emerges? The statistics are lamentable. Roughly 90 percent are inadequate in purifying effluent—you understand, 90 percent. Let me give you another figure—something in the order of 30 percent are in this state [points to purification installation], that is, they have never been in operation. We're talking about wasted money.

[Nikonov] Wasting money to no purpose is of course a shame. For instance, roughly 50,000 rubles has been sunk into this. But something else is far worse for us. Our life is changing, albeit slowly. The number of streets with every, so to speak, municipal convenience is increasing—kindergartens, canteens, hospitals are being built. And effluent appears—excuse me talking about the seamy side of life—which upsets the rural environment. A filter has been built to block this effluent's passage, which, as you can see, has not been used—it joins up directly with this small stream, which in turn heads off to the Volga. There are roughly 2,000 small streams of this kind in Chuvashia alone. As you know the backstreets of Russia are by no means supplied by springs. It is not, after all, here alone that we have this kind of picture, it is a common problem. This is the position in most parts of the Volga basin. Alas, we need several filters and responsibility.

Cooperative Tackles Cleanup of Log-Clogged Irkutsk Rivers

*PM1008092190 Moscow Television Service in Russian
1430 GMT 7 Aug 90*

[From the "Vremya" newscast: Report by N. Vidonov, Yu. Kostomarov, identified by caption]

[Text] [Newscaster] Log driving on Irkutsk rivers has ended. For the first time in 40 years ecological teams are at work on the Zima River. You will see that their work is not easy, and it is costly, but 100 cubic meters of timber raised from the river bed save a hectare of forest from being felled.

[Reporter] Log driving has ended. It is difficult and dirty work. Irkutsk rivers have managed to recover slightly and they look a little more cheerful. The Oka Log Driving Bureau, which is probably the biggest in the Angara basin, was the first one to close in the oblast. This office alone drove 800,000 cubic meters of timber per year along Ziminskiy Rayon's small and large rivers. It was hard for the rivers to bear such loads. Therefore many of them have of late become clogged up with timber. They contain up to six and seven layers of logs. What kind of rivers are these? They are more like long wooden bridges.

And what kind of fish could survive in them if all the spawning grounds were swept away by the logs. Yet the local rivers used to be famous for their fish. Maybe all this wealth will return again. The first ecological cooperative, Oka, which is operating on the Zima and Oka Rivers, has already raised tens of thousands of cubic meters of timber from the river beds and removed them from the river banks. The cooperative is operating under the aegis of the Ziminskles Association, but it is completely independent and economically accountable. And it is not doing badly. After all, the timber, mainly from deciduous trees, has not suffered through being submerged in water for a long time, but has become harder, resembling fumed oak. A perfect material for furniture making. Therefore furniture factories in Finland, the FRG, the Baltic republics, and our southern republics which lack timber are eager to buy this timber.

[V.G. Petrenko, director general of the Ziminskles Production Association, identified by caption] This timber is suitable both for processing and as fuel. Here in Siberia large quantities of commercial timber are still used for these purposes. Therefore this work is useful.

Vladivostok Closed Due to Pollution-Induced 'Epidemic' Fears

LD0308085690

[Editorial Report] Moscow Television Service in Russian at 2048 GMT on 2 August, in its "Television News Service" program, carries a three-minute report on the closing of Vladivostok due to fears of an epidemic.

Announcer Dmitriy Kiselev opens the report by saying: "Access to Vladivostok has been closed because of a worsening epidemiological situation." Correspondent L. Savitskiy then says that all 15 km of the beaches along the "azure coast" near Vladivostok are deserted. Normally the beaches are packed at this time of year. Health centers along the Gulf of Amur are also empty. Road blocks have also been set up on routes out of the city. The city has been cut off from the sea, the correspondent says. He says Typhoon Robin is to blame for this. He goes on: "But this has been brewing for a long time. This can be blamed on the ecological illiteracy of the local authorities, their reliance on luck rather than well thought-out management which would have ensured that the environment was clean. There are no sewage disposal installations. Every day Vladivostok dumps 500,000 cubic meters of effluent into the bay. These are the factors that have led to this situation."

He interviews A.V. Pereverzev, deputy chief medical officer of health for Vladivostok, who says: "Yes, the typhoon came and went. A very large number of pumps at pumping stations were submerged. Many toilets were flooded. All this water found its way from basements into the sea, into the beaches, and so on. As a result, the epidemic situation is indeed very serious."

Savitskiy says that the city soviet has banned people from entering the city. Pereverzev then says that this decision has been published in the press. Organized groups will still be welcomed in the city if their packages are arranged in advance, but casual visitors from Amur Oblast, Khabarovsk Kray, Sakhalin, and Magadan Oblast will be subject to the restrictions.

Video shows aerial view of empty beach, glimpse of sign saying "bathing banned." A car is shown passing through road block. This is followed by a close-up of another notice saying "Attention! Because of the unfavorable sanitary and epidemiological situation, citizens from other towns and transport vehicles are not allowed to enter the city or its recreational zones without special

passes. The fine for breaching this order is R100." Final shot shows three uniformed officials manning the road block.

Laser Radar To Monitor Ozone Layer

*LD1308183290 Moscow Domestic Service in Russian
1500 GMT 13 Aug 90*

[Text] A unique instrument facility developed by Soviet scientists has started operating at the Tayfun Mountain Experimental Base under the USSR State Committee for Hydrometeorology. The base is situated on the banks of Issyk-Kul Lake, Kirghizia. An optical laser radar, so far the only one in the world, will monitor changes in ozone concentrations in the atmosphere. This will enable the forecasting of climatic changes in the world. The information obtained will be fed to an international data bank and will help to introduce timely corrections in economic developments, not only in our country but also in other states in the northern hemisphere.

Resurs-F Earth Satellite Launched 16 August

*LD1708085990 Moscow TASS International Service
in Russian 0810 GMT 17 Aug 90*

[Text] Moscow, 17 Aug (TASS)—A routine Earth satellite, Resurs-F, was launched in the USSR on 16 August using a Soyuz carrier rocket.

The apparatus installed on the satellite is intended for carrying out multizonal and spectrozonal photography on various scales with the aim of continuing research into the Earth's natural resources in the interests of various sectors of the USSR's national economy, resolving questions of ecology, and international cooperation.

The equipment installed on the satellite is working normally.

When the flight is completed the exposed film will be handed to the Priroda State Research and Production Center of the USSR Chief Directorate of Geodesy and Cartography for processing, and for the subsequent distribution of the information obtained to consumers.

EUROPEAN AFFAIRS

EC To Improve Beach Pollution Monitoring

90WN0217A Rotterdam NRC HANDELSBLAD
in Dutch 13 Jul 90 p 5

[Article by Frits Schaling: "EC Wants Better Water Monitoring in Swimming Areas in Member-Countries"]

[Text] Brussels, 13 July—The European Commission is investigating the possibility of gathering data more quickly on the quality of the water along bathing beaches, to prevent the kind of situation from arising that occurred early this week, when a report on the subject was published which was as comprehensive as it was beautifully executed—and no longer of use to anyone. What good does it do for a European vacationer to learn in July 1990 that two years ago he really should not have taken a refreshing dip in the paradisaical bay of that shimmering little Greek island because then he could likely have contracted indigestion? Yes, and worse yet: What good is the insidious uncertainty about the question as to whether he indeed was or was not bothered by persistent diarrhea the next day?

The report's data, after all, relates to measurements which the authorities of 11 of the 12 member-countries—an exception has been made for Portugal until 1992—carried out at thousands of locations along the European coasts and in inland waters in the year 1988. The required measurements were a result of the guideline for the monitoring of water quality in areas used for swimming—along the coast and inland—which was adopted in December 1975 by the Council of European Environmental Ministers, but which did not become compulsory until 1985.

Since that year, the member-countries must regularly monitor the surface water at locations where there are many swimmers for the presence of salmonella bacteria, enteric viruses, mineral oils, non-naturally occurring foam, and phenols, as well as monitor the water's clarity, transparency, smell and color—and all of that on the basis of established limit values. The limit values can, incidentally, deviate from the limit values used as norms by the European Commission because in some cases member-countries maintain stricter standards. Because of that, and because member-countries have national regulations that differ from each other, the data in the report published this week is difficult to compare. Even the maps that have been included and which reflect the microbiological quality of water in swimming areas cannot be compared.

Some point of reference is probably given by the black dots on the maps representing locations where unsatisfactory water quality was repeatedly detected. But it must be kept in mind in the process that the data come from national governments which, mindful of tourism, have a tendency to present matters as more rosy-colored than they actually are. Thus, there are probably too few rather than too many black dots on the maps. But, in any

case, the European Commission announced that there were fewer in 1988 than in 1987.

The Netherlands, for example, listed 12 locations for 1988 where the water in swimming areas is not to be trusted: the IJssel River at Kampen; the Dammed Meuse at Brakel; the beach at Moerdijk on the Hollandsch Diep Strait; the Biesbosch (inlet of the Gijster); the Upper Rhine River at Bijland; the Pannerdensche Canal (Loowaard); the Lower Lek River (island at Maurik); the Lower Rhine/Lek Rivers (Redichemse Holm, Culemborg); the Lek River at Lopikerkapel; the Lek River at Tull and the Waal River); and finally two locations along the IJssel River in Gelderland—Fraterswaard at Doesburg and the yacht harbor at Doesburg.

Belgium

Local authorities do not like the fact that data on water quality are made public. In early June, the mayors of towns on the Belgian coast urged State Secretary for the Environment Miet Smet not to release any more data on the fecal pollution of the seawater, "because the public would just be confused by it." Last year the constant reporting on the high concentrations of salmonella bacteria in the vicinity of Nieuwpoort and De Panne led to an outright suspension of swimming in August. Some four weeks ago, Mrs. Smet decided to go ahead and publish data, but it will be presented "in a different manner," as a spokeswoman for the state secretariat announced yesterday. It appears from this that increased monitoring in regard to the presence of salmonella bacteria in seawater has been instituted this year for eight locations along the Belgian coast.

The European Commission does not have a capability of its own to check up on whether what the governments are feeding it is indeed true or not and is thus dependent upon the complaints about the quality of water in swimming areas that private citizens and newspapers submit to it. Particularly in the United Kingdom and Spain citizens are active in making accusations against their governments at the Commission. Often that is done through the members of the European Parliament from the district in question. But the European Commission also investigates whether the national legislation of the member-countries is in agreement with the accepted guidelines. Thus, the Netherlands was once condemned by the European Court of Justice, in 1987, because its law concerning the quality of ground water did not conform to European requirements.

Legal Proceedings

Legal proceedings in regard to water in swimming areas have been instituted against all the member-countries of the EC, but no precise data about the number of them are known because they are confidential, a member of the European Commission's legal staff said this week. Furthermore, the situation often fluctuates, depending upon the stage the proceeding is in and the responses the member-countries give. Sometimes lawsuits can also be

dropped if the Commission has been satisfied by a government's response or by measures adopted in the meantime. That does not alter the fact that Ludwig Kraemer, head of the department that monitors compliance with Community environmental laws, recently complained that the member-countries are failing on a large scale to implement the guideline regarding clean water for swimming and are providing false information.

The most forthcoming is the Danish Ministry of the Environment, which annually publishes detailed maps of polluted or suspect swimming areas. France also provides timely information about water quality: last year the number of heavily polluted coastal areas had declined considerably in comparison with 1988—from 15 to four. In Belgium, the percentage of locations at the seashore with good water for swimming has risen to almost 80 percent (in 1987 it was still 44.4 percent), but it can be assumed that 1989 will present an entirely different picture. Also in 1988, the number of reliable freshwater swimming areas declined from 75 to 62 percent. Spain cites an 81-percent figure for swimming areas along the coast that complied with the EC standard in 1988, while in only half the cases did the freshwater swimming locations comply with it.

In Italy, water in coastal swimming areas complies with the Italian standard in 84 percent of the cases, and in the lakes 59 percent of the time—but one should not go swimming in rivers in Italy: No more than 10 percent of them are in compliance with the standard. Finally, according to the European Commission, the data from Greece are insufficient "to evaluate the quality of the water"—although the country itself declares that 407 of the 413 sites that are regularly monitored fulfill the requirements of Greek law.

The Mediterranean should really be avoided if for no other reason than the population pressure alone: More than 130 million people live around it, and this year an almost equally great number of tourists are expected—120 million. Such a migration cannot help but have disastrous effects on the quality of the seawater. It therefore seems to be a pious wish on the part of European Director for Environmental Affairs Carlo Ripa di Meana that European citizens should have the right "to be able to swim in clean water."

FINLAND

Agency Reports on Waters' Eutrophication

90W/N0205A Helsinki HUFVUDSTADSBLADET
in Swedish 30 Jun 90 p 3

[Article by FNB [Finnish News Agency]: "Waters Affected by Eutrophication"]

[Text] The most polluted waters have become cleaner in the last few years, while previously clean waters have been polluted due to eutrophication and increased use of chemicals. This is shown by the study by the Water and

Environment Administration, and the administration is of the opinion that the development is continuing.

Eutrophication has increased, in particular along the coasts. But inland as well the eutrophication has made the water worse for fishing, for example. Harmful blue-green algae and green algae turned up everywhere in Finland's lakes during the 1980's.

Attempts to purify polluted water have often led to eutrophication, the Water and Environment Administration says.

In the last decade the forestry institutes, for example, built purification installations for waste water. These facilities lowered the acidity of the water. At the same time the increase in production, for example, led to a greater burden on the nutrients. Even the nutrient burden on the water from agriculture increased, as did that from fish farming.

The phosphorus burden in the waste water was kept low, while the nitrogen load increased somewhat.

Lakes Clean; Streams, Rivers Dirty

The Water and Environment Administration has divided lakes, streams and rivers into various classes, depending on whether the water can be used for drinking water, for swimming and fishing.

Most of the surface water is in good condition, although it has deteriorated. Nearly 80 percent of the water in the lakes is classified as excellent or good, nearly one-fifth was satisfactory, and only four percent was in passable or poor condition. The study included 90 percent of Finland's lakes.

The streams and rivers were in poorer condition. Fewer than half of the streams and rivers were in excellent or good condition, one-third were satisfactory, and one-fourth of the streams and rivers in Finland were in passable or poor condition. The study included 70 percent of all the 20,000 kilometers of river in the country.

More than half a million samples were taken in nearly 800 places.

Fish Farming Pollutes the Sea

Almost all rivers and the few lakes along the coasts are eutrophic and polluted due to a high burden of waste water, among other things.

According to the classification, they are in satisfactory or passable condition; in the worst places the reason is lack of oxygen or high bacterial contents.

In the artificial basins built in East Bothnia, the fish have a high PCB [polychlorinated benzils] content. For that reason many basins in that class of water are in poor condition. Furthermore, the artificial lakes are also very swampy and acid.

The acidification threatens principally all small, clear lakes. According to this study, the acidification had not noticeably impaired the usefulness of the water.

The sea water in the greater part of the Gulf of Bothnia is in a different class and is only mildly polluted. The shore waters are opaque and nutrient-rich, which is due to waste water and nutrients from the beach.

The most polluted coastal areas are near the cities, for example Vaasa, Pietarsaari, Helsinki, Hanko, Porvoo, and Espoo.

Fish farming pollutes primarily the archipelago. The waters at Kustavi, Houtskari, and Rymattyla, for example, cannot be used as previously because of the fish farming.

Many lakes in Finland are still practically untouched, particularly the waters in the vicinity of the Kymmene River and Vuoksen.

The Water and Environment Administration's study was presented Friday in Helsinki by director-general Simo Jaatinen and bureau chief Raimo Penttonen.

Biomanipulation Being Tested in Effort To Restore Lake

90W'N0212C Helsinki *HELSINGIN SANOMAT*
in Finnish 22 Jun 90 p D1

[Article by Marko Jokela: "Most Far-Reaching Biomanipulation Experiment in the World; Eutrophication of Vesijarvi Being Combated by Trawling for Roach and Stocking It With Pike"]

[Text] Ecological purification is gaining more of a foothold than before in connection with the restoration of lakes. It has been noted that heavy-handed methods like dredging have unpleasant side effects.

Biomanipulation, or restoration of the food chain, is one of the latest purification methods. For the first time in the world, biomanipulation is being tested on a large scale on Vesijarvi [Water Lake], near Lahti, as a project lasting many years. The summer of next year will demonstrate whether the ambitious venture begun last year has succeeded.

If Vesijarvi recovers, there will be hope for eutrophied lakes in Finland and elsewhere in the world.

Lahti's Vesijarvi is rated as being in satisfactory condition. The problem with the lake is eutrophication, the primary cause of which is overloading from outside the lake—that is, polluting nutrients have been and are being discharged into the lake. There is work enough for those who are cleaning up the lake since the city actively discharged such nutrients into the lake in the 1960's and the 1970's.

"Vesijarvi must be restored to a healthy condition, but this will require tens of years of diligent and diversified restoration, careful observation, and a lot of money,"

limnologist Timo Kairesalo estimated. He is the scientific expert for the City of Lahti, the towns of Hollola and Asikkala, the University of Helsinki, and the Game and Fishing Industry Research Institute's joint Vesijarvi project.

A lake that is rated excellent can be used as a source of untreated water to be purified and serve as drinking water, for swimming, and for recreational fishing. The fish from an excellent-rated lake are healthy, and the water is clear and pure.

Lakes rated in good condition are not always recommended as drinking water sources.

In a satisfactory-rated lake, waste water and other pollutants have contaminated the water, making it unfit for drinking. For at least part of the year, clumps of algae interfere with swimming. Those who are sensitive to it may develop allergic symptoms. The only all-year-round form of recreation left is fishing. Worthless fish have certainly taken their living space away from the other fish.

In a lake that is in passable condition, one cannot usually swim because the water is muddy, and unpleasant odors are noticeable. The fish that swim in the lake are not recommended for use as food for humans—if anyone would even feel like fishing in such miserable waters.

Vesijarvi's Algae Poisons Kill Cows

These past few years Lahti's Vesijarvi has frequently made the headlines. People have begun to worry about the eutrophication of the lake, the spread of blue algae, and the contamination of the water by sporadic discharges of pollutants.

In the 1970's there was not yet much talk of destruction of the environment. Attitudes were not open to nature conservationists: Only a few people were seriously interested in the state of the environment. Nowadays, anyone guilty of polluting would probably not get out of the fix he was in without unpleasant publicity or legal consequences.

The City of Lahti dumped its untreated waste water into Vesijarvi until at least 1976. The City of Lahti is the chief provider of funds for the restoration of Vesijarvi. A well-known objective of environmental taxes is being realized at Vesijarvi: The one who pollutes pays for it.

It is hoped that the restoration of Vesijarvi will stimulate officials responsible for protecting waters and fishing waters to implement cleanup experiments elsewhere in Finland, as well.

The consequences of the ravages caused by irresponsible dumping of waste water and sloppy supervision were still starkly apparent at Vesijarvi in the early 1980's: The water was a poisonous green, a slimy mat of algae floated on the surface, liver poisons were observed in the algae, many fish suffered from diseases, and many valuable fish

had disappeared when the lake was taken over by roach, bleak, and smelt. The situation is improving now.

What saved Vesijarvi was its expanse: In smaller lakes and ponds, eutrophication may consume all the oxygen and kill the fish. There are no such oxygen-loss problems in Vesijarvi—not even in winter.

Popular Vesijarvi, with its clear waters, was transformed into a muddy lake in poor condition. Fishermen may be moved by the traditional tale of an 11.5-kg bream that was fished out of Vesijarvi in the 1920's, a record for Finland.

Slimy with blue algae, the water soils everything, from nets to swimsuits. There is no need to post swimming bans on the lake shore because anyone in his right mind avoids dipping his toes into the ill-reputed lake.

Vesijarvi achieved notoriety as early as 1928, when 40 cows wandering through the meadows surrounding the lake sickened and died. The cows had drunk from Vesijarvi and were afflicted with sudden poisoning.

The blossom of the blue algae was revealed to be the culprit. The algae produced so-called water flowers that drifted into the water along the shore and poisoned it. It was not until the 1980's that it was demonstrated that there is a clear connection between drinking water poisoned by blue algae and liver ailments.

In Finnish lakes the most troublesome algae season is July and August.

Biomanipulation Comes to Grips With Food Chains

A lake's ecosystem is very sensitive to any kind of change. Even a small change may lead to difficult and permanent problems. The kinds of organisms that live in a lake form a food chain that is a complex and difficult matter to study, and they are closely dependent on one another: The disappearance of one link in the food chain may destroy the relations between the living conditions of the next organisms in the chain.

As a result of eutrophication, for example, the proliferation of one kind of organism endangers the activities of the entire ecosystem. This is what happened with Vesijarvi when roach and smelt multiplied wildly.

Restoration of the lakes requires exact and diverse knowledge of the quality of the water: Erroneous, exaggerated restoration may even hinder a lake's recovery.

The use of dredging, for example, is not warranted at Vesijarvi. The lake covers much too wide an area to dredge, and it would be a very costly operation. Furthermore, the bottom sediments are becoming oxygenated again, and their delicate recovery must not be disturbed.

The key word in the restoration of lakes is diversity. Neither dredging, cutting out the reeds, adding lime, turning over the bottom sediment, aerating the water with oxygen, biologically and chemically treating waste

water, eliminating the worthless fish by fishing, nor introducing predatory fish is alone sufficient as a restoration method.

Effective restoration requires the proper timing of purification methods, appropriate measurements, continuity, and close follow-up observation over the years.

The lake restorers' latest weapon is biomanipulation, which was brought to light in 1975.

"Biomanipulation has completely overturned the old ideas that the condition of the fish depends solely on the quality of the water. Limnologists are now willing to believe that the fish and the introduction of fish have an effect on the water," Kairesalo said.

"It may be that limnologists are a bit conservative. They are more inclined to doubt than to try new methods. The application of biomanipulation is also more limited in Finland because water concerns and fish concerns are the responsibilities of different officials," Kairesalo thought.

Water concerns are administered by the Environment Ministry, and fish concerns by the Agriculture and Forestry Ministry.

The encroachment and spread of blue algae in our lakes is being prevented through biomanipulation. The poisonous nature of blue algae has been seriously studied in Finland since 1985. Elsewhere in the world it has been studied since the early 1980's.

Biomanipulation tries to influence the food chain from the top downward. Through it, an effort is made to balance the number of species in the local fish population and their interrelations. In practice, this is accomplished by continuous, intensive trawling of worthless fish and the introduction of predatory fish for from two to four summers.

If the roach enter the trawl net and the pike that are introduced thrive in Vesijarvi, and also eagerly devour the roach that elude fishermen, biomanipulation will keep eutrophication under control.

The trawling operation would have to put an equal strain on the roach population: The bottoms of the nets would admit struggling roaches of all ages.

"If only older roaches are trawled, that will leave an abundance of food for the fingerlings. This is why the roach population increases within a few years' time to the same size it was before the trawling operation," Kairesalo noted.

Netted Roach for Human Consumption?

Last summer 164,000 kg of worthless fish, chiefly roach and smelt, were taken from Vesijarvi with trawl nets. It is hoped that bream and bleak will also be caught in the rear ends of the nets

During the trawling operation last summer, over 800 kg of eutrophying phosphorus, which represents 15-20 percent of the phosphorus load that annually enters the lake from outside it, were removed from the lake. Part of last summer's trawl catch ended up in the dump. They are going to try to use this summer's catch for animal fodder. There are also plans for developing canned roach for human consumption.

"After next summer's trawling operation, it'll be clear to us whether biomanipulation has succeeded and how effectively so. The trawl catches would have to be at least as big as last summer's. There's hope that we'll achieve this because 100,000 kg of worthless fish had already been netted by Midsummer Day," Kairesalo told us.

The toughest problem encountered in trawling is locating the fish. Researchers do not know the size and age structure of the fish population on a continuous basis. Fingerling counts have not produced the anticipated exact figures, nor does echolocation work in the shallow waters in which roach abound.

"Test fishing yields only random catches of fish. It's hard to judge from them what the total population is. The biggest threat and challenge to the project lie concealed in this," Kairesalo thought.

Trawling is the cheapest and most effective way to restore a eutrophied lake. Removal of the bottom silt, chemical precipitation of nutrients, and oxygenation would be much more costly.

Last summer's trawling operations were prematurely suspended due to a lack of funds. In the end, the City of Lahti got worried and granted an additional appropriation.

"It would be unfortunate to have to interrupt the biomanipulation project right in the middle of everything. The project is of international value," thus Kairesalo sent greetings to the custodians of the money chest.

Agriculture's Diffusion Load Must Be Gotten Under Control

The restoration of Vesijarvi does not depend on trawling alone. It also requires reduction of the volume of nutrients that flow into the lake. According to the most pessimistic estimates, the traffic, energy production, and agriculture in the Lahti area produce such large discharges of pollutants that Vesijarvi will never in the world be restored to its former condition.

The biggest culprits are the farms along the shores of the lake, whose discharges took the researchers by surprise.

"Fertilizers carry a lot of phosphorus into the lake from the farms and forests, the volume of which determines the degree of eutrophication," Kairesalo explained.

"But how can we control the diffusion load?" Kairesalo snorted resignedly. According to studies conducted last year, fertilizer runoff from farms was allowed to flow

into Vesijarvi at many points on the lake. It was also noted that there is ample room for improvement in the handling of household water.

Nineteen farms and 29 estates were singled out.

The worst deficiencies were the small capacity or lack of urine receptacles in conjunction with manure storage and overflowing of the liquid pressed out of stored fodder. Proper drainage, sealed wells, or effective absorption would correct the situation. The farms will be reinspected in the fall of 1991.

Aerial pollutant fallout on Vesijarvi is a lesser evil than the diffusion load. The portion of Vesijarvi's nitrogen load that falls on the lake with rain is estimated at a good 20 percent. However, phosphorus is the worst eutrophying nutrient.

"Vesijarvi has been eutrophying so badly and for such a long time that preventing phosphorus discharges alone, for example, will not help any longer. Its nutrient concentrations continue to be dangerously high, and the algae clumps will continue to thrive for a long time to come," Kairesalo estimated.

According to an observation study that has been conducted for 10 years at Joensuu University, intensive forestry operations release phosphorus into the waterways. Clear cutting of forests clearly increases the release of phosphorus from the soil. [The flow of] nutrients would be stopped if even a 10-meter uncut strip were left between the water line and the logging area.

FRANCE

Ecologists See Proposed 1991 Environmental Budget Allocation as Low

90/WN0234A Paris LE MONDE in French 27 Jul 90 p 26

[Article by Marc Ambroise-Rendu: "Environmental Budget Less Than One Percent of Government Spending"]

[Text] The proposed budget for 1991 puts an additional Fr120 million and 125 more employees at the disposal of the environmental agencies in their struggle to improve the quality of life in France, protect nature and fight pollution. This decision, which emerged from the first round of Michel Rocard's arbitration, is far from satisfactory to the ecologists...

The environmental groups that have been springing up everywhere as a result of accelerated growth and its repercussions, observers who have watched environmental policy for the last 20 years lag further and further behind environmental deterioration and damage, and "greens" waiting to pounce on government mistakes are going to think the mountain has given birth to a mouse.

Are these few centimes in supplementary appropriations all we have to show for the pro-ecology promises of the

head of state and his prime minister, all we have to show for Mr. Lalonde's "green plan"? The budget process is the acid test, a test it will now be all the more difficult to pass, given the recent "back-pedaling" we have seen—violations of the Montagne act, the clearing of forest lands on the Rhine, the Legion of Honor given to a hunter accused of unethical practices.

However, after 10 years of slow decline, appropriations for the Ministry of Environment had sunk to such a low level that even the smallest supplement looks like a spectacular improvement. With appropriations increasing from Fr803 million in 1990 to Fr923 million in 1991, Mr. Lalonde can boast that his budget for fixed and ordinary expenses has gone up by 15 percent. He thus finishes in second place, behind Jack Lang (17 percent), but ahead of Pierre Arpaillange, Lionel Jospin and Roland Dumas (all nine percent). So the budgetary priorities look respectable enough, though they scarcely begin to make up for lost time.

Efforts will be focused on improving water quality in rivers, mapping of underground water resources, and—ironically enough this year—flood warning systems. The survey of the environmental patrimony, which only this year got underway on a large scale, will continue. That "state of the environment" report, never before attempted, is urgently needed if we want to know just what the country stands to lose. But the creation of Mont Blanc National Park planned for this year is once more postponed.

Industrial Nuisances

Environment did best this year on the industrial nuisance front. One hundred industrial inspectors will be hired in 1991. They will reinforce the ranks of the 537 engineers already keeping an eye on environmentally hazardous factories. All these "watchers," previously attached to the Ministry of Industry, now come under Mr. Lalonde's wing.

This is not the only transfer. The state secretary also inherits 200 researchers from the laboratories of CERCHAR [European Center for Research and Advanced Training in Scientific Computation], which is now to become the National Institute of Industrial Environment and Hazards. Last and not least, Mr. Lalonde also regains administrative control over his own personnel (less than 1,000 employees), who for some years now were responsible to the Ministry of Equipment.

He is taking advantage of that opportunity to hire 25 regional environmental directors to head the regional bureaus, whose staffing pattern he hopes will include personnel from the regional architectural and environmental directorates (DRAE), the regional water management authority (under Agriculture), and the centralized hydraulic engineering services (under Navigation).

If he is successful, Environment will have experienced teams of 20 to 60 officials in every region capable of standing up to their colleagues from other ministries. But

these transfers, which ruffle the feathers of the departments affected, are still under discussion at Matignon. Giving Environment the local branches it has always lacked would be a concrete expression of the government's vaunted political commitment [to a stronger environmental policy].

The final decisions are expected to be announced once parliament goes back into session and before it begins debating Mr. Lalonde's "green plan, the proposed outline for a new environmental policy. The decisions will in large part be translated into budgetary figures for 1992, since 1991's is actually only a "transition" budget which gives promise of more significant changes to come. It will be noted that even if the state secretariat [for environmental affairs] gets the entire Fr1.218 million in supplementals, including all the augmentations and new transfers, its new budget will still amount to less than one percent of government spending.

Nuclear Agency Criticized for Late Detection of Problem

AU0908140690 Paris AFP in English 1353 GMT
9 Aug 90

[Text] Paris, Aug 9 (AFP)—The official French nuclear safety agency criticised nuclear authorities on Thursday for delays in detecting a problem at a nuclear plant in central-eastern France which is currently shut down for repair.

The Creys-Malville Plant, which stopped producing electricity on July 3, is unlikely to resume operations for several months, plant officials said Thursday.

The Central Safety Service of Nuclear Installations notably criticised Electricite de France (Electricity of France), responsible for operating France's 55 nuclear plants, for failing to detect a sodium oxydation problem at Creys-Malville during a two-week check.

The plant officials were also censured for waiting until July 3 to shut down Creys-Malville while the flaw had become more serious since June 20. The Creys-Malville Plant has been plagued by shut-downs since its 1986 opening.

Thursday's criticism came as several other French nuclear plants reported incidents, which they described as minor, over the last few days.

At the nuclear station in Golfech, southwest France, workers forgot to close a safety door for more than a week, while in Paluel, in the west, the station shut down automatically after an incident involving a safety valve. No radiation escaped to contaminate staff or the environment.

Two physicists working at a nuclear research institute in southeastern Grenoble were meanwhile contaminated by above-normal radiation levels after a faulty maneuver, the Leo Langevin institute said.

The pair received doses of two radiation rems, while five rems is the annual norm for humans.

ITALY

Import of Radioactive Material Investigated

90WN0216A Rome L'ESPRESSO in Italian 8 Jul 90
pp 30-31

[Article by Enrico Fontana: "Radioactive Intrigue"—first paragraph is L'ESPRESSO introduction]

[Text] Pollution: Scrap metal contaminated with cesium 137 has arrived in Italy from the Ukraine via Austria. Here is the story of what goes on behind the scenes of this high-risk international traffic:

There is a new route for the traffic in radioactive waste; it leaves the Ukraine, passes through Austria, and has our country as its final stop. In technical jargon, this waste consists of "sources of radioactivity"—medical and industrial equipment saturated with cesium 137 (a long-lived radionuclide) and henceforth unusable—that winds up on the international scrap metal market hidden in cargoes consigned to companies that recycle aluminum and other metals.

The evidence concerning this traffic is being gathered by the Como court that is investigating the case involving Premoli, the company located at Rovello Porro (near Saronno) that discharged substantial quantities of cesium 137 into the Po River between March and September of last year. Moreover, a recheck of the list of the suppliers led to the discovery that materials for recycling were arriving at the Premoli installation from France and Austria as well.

It was only thanks to the investigation conducted by the Austrian government agencies that the embarrassing truth came to light: through an intermediary, shipments of scrap metal contaminated by cesium 137 had wound up at several Italian firms—perhaps the same scrap metal that had unwittingly been processed by Premoli. Through their respective ministries of industry, the Austrian and Italian governments are now cooperating to turn the spotlight on what is increasingly taking on the characteristics of an international intrigue—an intrigue with the disturbing implication that Italy has become a dumping ground for the radioactive waste of eastern Europe through the complicity of some Austrian entrepreneurs.

The fragmentary reports trickling out of Vienna, however, have provided some additional encouragement to the Como judicial personnel who are involved in the investigation of radioactive pollution, and perhaps it will be possible by crosschecking to follow the trail back to the supplier of this cesium "bomb" that wound up at the Rovelli Porro facility. Moreover, the entire affair could also provide the impetus to revise Italy's laws dealing with the disposal of these "radioactive sources."

The board of directors of ENEA [(Italian Committee for Research and Development of Nuclear and Alternative Energies)] has in fact approved and sent to Minister of Industry Adolfo Battaglia a report asking that the so-called certificate of disuse be required of all health and industrial facilities that use equipment of this type. Until now the only requirement has been to report the possession of such equipment, and there are no controls over what happens to it when its productive life has ended.

This report was drawn up following the speech by ENEA president Umberto Colombo, who had criticized the ENEA-DISP (Department for Nuclear Safety and Health), the agency in charge of the controls on radioactivity, for its delay in taking action—a delay which DISP director Giovanni Naschi justified by citing the legislative limits which enjoin the DISP itself from intervening except when the contamination comes from the nuclear power plants—and this was not the case with Premoli. In short, the responsibility devolved entirely upon the USL's [local health units].

But the repeated arguments within ENEA have not been the only ones in connection with this affair. There has also been more than one instance of friction between ENEL [National Electric Power Company] and the health authorities of Lombardy. Everything began late last April when the Multizonal Executive Committee for Sanitation and Disease Prevention in Milan (PMIP) was informed of the presence of abnormal levels of radioactivity in the waters of the Po River at the ENEL's experimental station on Serafini Island near Caorso pursuant to surveys made between May and August 1989.

On their own initiative, the technical experts in charge of protection against radiation followed the radioactive "trail" for three weeks back up the Po, Lambro, and Lu rivers to the Luigi & Figli Premoli plant for the refining of metals. Cesium 137 was found at the Premoli plant, just as it was in the Po. Lower levels of radioactivity have also been found at the Astra plant in Gerezano.

One must however await the appointment by the PMIP—on behalf of the Como court—of experts to obtain the data relating to this pollution that until now have been "preserved" by ENEL. The radioactivity passing Serafini Island between March and December of last year is estimated at 10 curies (seven curies in the specific period between 23 May and 11 August) while the spot check indicated 10 thousandths of a becquerel per liter. Although these are abnormal levels, neither ENEL nor ENEA have judged them to be cause for alarm. Moreover, the initial results of the tests carried out by the Varese Cytogenetic Laboratory on 48 workers of the Premoli plant appear to rule out any health effects.

Instead, what troubles the ENEA technical experts is the possibility that there are other polluted areas in our country. The scrap metal, in fact, arrived at the Premoli plant only after it underwent an initial fusion treatment, and substantially higher releases of radioactivity may

therefore show up in other places. A spot audit was accordingly made of the suppliers—also by court order—and this made it possible to follow the trail to Austria.

The origin of the contaminated material remains uncertain, however. According to Vittorio Carreri, director of the Sanitation Service of the Lombardy region, the origin could be "an exhausted source of cesium that was used to X-ray industrial equipment." In the opinion of Emilio Molinari, Green-Rainbow regional councilman, it is more likely to be hospital equipment (specifically, apparatus used in cesium therapy). "This type of source," Molinari says, "varies from a minimum of 600 curies to a maximum of 6,000. According to estimates supplied by the PMIP, if 10 curies were in the Po River downstream, it is almost certain that at least 50 to 60 curies were in the river at the source of the pollution. The farther upstream, the more the pollution." "Somewhere," Molinari goes on to say, "a radioactive incident of considerable magnitude and seriousness occurred that was certainly the most serious nuclear event in Western Europe and a far more serious incident than the one at Seveso."

Premoli, however, will be aided by a program presented by ENEA to USL No. 9 in Saranno. The collection, transport, and disposal of the equipment contaminated by cesium 137 will require approximately five months, and at least 10,000 barrels would probably leave the plant—at a cost of 10 billion lire, which would initially be borne by the government. To find those responsible for the radioactive pollution and pass on to them the cost of the decontamination (in addition to the possible losses caused), it will be necessary to await the results of the investigations of the international "trail" of the traffic in scrap metal from the Eastern European countries—a traffic that could have some additional unpleasant surprises in store.

Ansaldo's Research, Development Projects Outlined

Research Centers, Projects

*90MI0250 Rome FINMECCANICA NOTIZIE
in Italian 31 Mar 90 pp 18-19*

[Text] By availing itself of the financial incentives under the program contract stipulated between IRI [Institute for the Reconstruction of Industry] and the Ministry for Special Intervention in the South, Ansaldo is investing more than 57 billion lire for the establishment of research centers and approximately 120 billion lire for research projects. The following is an outline of the principal initiatives planned:

"Combustion and the Environment" research center in Gioia del Colle (Bari), for the testing and qualification of high-performance innovative systems with an environmental impact, established at Termosud.

"Transport and Superconductivity" research center in Naples, designed and currently being completed at

Ansaldo Trasporti, will perform research and experiments on components, equipment, and systems for electrified public transport and for the development of superconductivity and its applications.

Research project on new combustion systems, to be developed at the Gioia del Colle center.

Research project on transport, to be developed at the Naples center, covering: Functional vehicle qualification, the application of artificial intelligence technologies, vehicles and systems for signaling and automation used in advanced urban transport systems, signaling and automation systems for lines with low traffic, and innovative materials and technologies for vehicles.

Superconductivity research project, to be developed at the Naples center, covering: Feasibility studies, materials and semifinished products, magnetic levitation, electromagnetic accumulation, filtration and separation, and magnets for spectroscopy.

In addition, other R&D activities to be set up in southern Italy are being identified within CRIS—Innovative Research Consortium for the South (composed of Ansaldo, Ansaldo ABB Componenti, Ansaldo Trasporti, Ansaldo Industria, Aerimpianti, and Termosud). These include combustion, railroad signaling, power activation, and combustible cells, to be developed in collaboration with the Sicilian Mineral Agency and with the participation of ENEA [Italian Committee for R&D of Nuclear and Alternative Energies], and the CNR [National Research Council].

All these initiatives will provide Ansaldo with infrastructures and skills that are unique in Italy and in the forefront in Europe, and that are also of great interest to Italian industry and the principal suppliers of services.

Environmental Project

*90MI0250 Rome FINMECCANICA NOTIZIE
in Italian 31 Mar 90 pp 19-20*

[Text] An agreement has been signed between Ansaldo and Agensud (Agency for the Promotion of the Development of Southern Italy) to develop the operational project for an integrated system to monitor air quality and environmental radioactivity in southern Italy.

The system has the following functions: To monitor the quality of the air and the evolution of acute polluting phenomena, both chemical and radioactive; set up a data base of the air's chemical, physical, and meteorological parameters and provide forecasts on the evolution of the phenomena; monitor the state of the environment, act as a support in planning protective measures and improvements; support protective measures for the health of the population, even in abnormal situations; and act as an interconnecting and integrating system for existing and projected local air monitoring networks, by organizing and integrating the currently available data.

The network will be based on three levels of data centralization: A provincial level, responsible for the collection, preprocessing, and transmission of data; a regional level, responsible for the management of outlying stations, data processing, and interface functions with local users as well as communications with the national center; a central level, in which the interregional operations center will form the basis of southern Italy's environmental observatory, with the function of obtaining preprocessed data from the regional centers, organizing it in a data base, processing it, and managing the user interface. The central level will therefore assume a technical support role in environmental planning and monitoring.

NETHERLANDS

Agreement Reached on Drastic CFC Cutback by 1995

90WN0202B Amsterdam DE VOLKSKRANT in Dutch
21 Jun 90 p 7

[Unattributed article: "Reduction Must Be Virtually Complete in 1995: Business and Government Agree on Restricting CFC's"]

[Text] The Hague—In five years, the use of so-called hard CFC's (chlorofluorocarbons) will be reduced by 99 percent. This is the result of the CFC action program announced today by the government and business and industry.

Between now and 1995, the use of ozone-damaging halons, which are present in fire extinguisher equipment, will be reduced by as much as 100 percent. According to the agreement, companies will reduce their CFC's and halons "on a voluntary basis." The costs involved in the production of alternative substances (soft CFC's) are around 200 million guilders.

In 1998, a legal ban on the production and import of these CFC's and halons will go into effect because they harm the ozone layer and promote the greenhouse effect.

The action program contains no solid agreements on reducing soft CFC's, which are less harmful to the ozone layer. For this reason, producers often choose these soft CFC's as an alternative to the hard ones. However, large-scale use of the substitutes in turn has major drawbacks, because this would stimulate the greenhouse effect. If all hard, completely halogenated hydrocarbons are replaced by soft CFC's, there will be a temperature increase of 0.5 to one degree in the coming century, according to a calculation by professor of environmental studies Lucas Reijnders in the May issue of the monthly published by the Nature and Environment Foundation.

A further distinction must be made within the category of soft CFC's, according to Reijnders: They include more or less environmentally hazardous substances. Naturally, he prefers the latter. Reijnders' conclusion appears to have been taken into account in the action program only

in a vague sense. An appeal is made to business and industry to handle the soft CFC's "carefully." There will be annual reports on what soft CFC's can be used for and what they cannot be used for.

In order to cut back on CFC's, a division was made between use in spray cans, styrofoam for insulation purposes, cooling systems, and cleaners and solvents. The only products in which CFC's can be present after 1995 are spray cans (six tons) and cleaners and solvents (50 tons). Present use amounts to 9,300 tons.

The vast majority of producers of spray cans have already switched over to alternative propellants. The action program states that the remaining products can switch over from spray cans for cosmetics and household use to more friendly technologies. This need not mean high additional costs.

The price of refrigerators for household use is expected to increase by 25 guilders. Production costs will rise because of the use of insulating foam without CFC's and extra coolant.

The costs involved in the full execution of the 10-year program will rise from 15 million this year to 158 million at the end of the century. Companies in other countries as well will be faced with similar costs.

Under the agreement, which was officially concluded today between Minister of Environment Alders and the companies, the Netherlands goes somewhat further than international agreements. At the international ozone conference in London to be held this week and next, an agreement is expected that will completely ban hard CFC's by the year 2000. The basis for protection of the ozone layer was laid out in 1987 in the Protocol of Montreal. In that document, it was agreed that the use and production of hard CFC's would be scaled back by one half by the year 2000.

The action program reflects a preference for motivating business and industry to cooperate voluntarily, which would mean faster achievement of the reduction. In the second part (the period from 1996 to 2000), a total ban is effected. There will be a special CFC commission to regulate the situation.

Labor Party Wants Sharp Reductions in Car Use

90WN0202A Amsterdam DE VOLKSKRANT in Dutch
18 Jun 90 p 3

[Unattributed article: "PVDA [Labor Party] Caucus Calls for Priority to Restricting Cars"]

[Excerpt] Amsterdam—The Labor Party (PVDA) wants to curb auto transportation. Parliamentary caucus chairman Woltgens said on Saturday at the party council in Amsterdam that political circles should give priority to public transportation and to containing the use of cars, "even if it is often alleged that this is unpopular."

Cars will have to be restricted for the sake of the living environment, health, and road safety. Woltgens: "If necessary through compulsory measures, if possible through price increases, but far preferable is through offering citizens a good alternative to their car: good, instead of neglected, public transportation."

Woltgens took care to avoid being labelled a car-hater. There are economic benefits associated with the car, and the social significance of that means of transportation has become very great. Motorists are not "semi-criminals," the PVDA caucus chairman told his colleagues.

Woltgens announced that this week during Chamber debate the caucus will object to the eight-cent increase in excise taxes on gasoline alone. Drivers who use diesel and other fuels should also have to share in the tax increase.

At the same time, the Labor Party wants a lowering of the motor vehicle tax. "People who use a car reasonably and economically will not be burdened by the increase in the excise tax," according to Woltgens. "People who use the car just to visit the children or the hospital should not be lumped together with road maniacs who use the car to do everything."

Talking about the environment and the NMP [expansion unknown] plus, which appeared last week, Woltgens also said that the PVDA would demand stricter policy to counter surplus manure. The amount of livestock must be reduced. Woltgens: "Thus far, we have no measures controlling production. Such measures must be adopted. Beginning with a ban on an expansion of livestock holdings. The spigot of manure must be shut off."

Chemical Firms Accused of Leaking Dioxin

90WN0186B Amsterdam DE TELEGRAAF in Dutch
8 Jun 90 p 9

[Text] Arnhem—High dioxin concentrations are found in the waste water that four chemical companies are discharging into the Rhine. The large quantity of the highly toxic substances is evident from measurements by the Clean Water Foundation at nine chemical companies in the Netherlands, Germany, and France.

The foundation submitted the report on its findings to Minister for Transport and Public Works Maij-Weggen at a symposium on the ecological restoration of the Rhine yesterday in Arnhem. The minister spoke of an alarming investigation and promised to study the conclusions in greater detail. According to Clean Water, the companies where there are inadmissible concentrations of dioxins are Shell Netherlands Chemical, Hoechst Griesheim, Solvay Rheinberg, and Cellulose de Strasbourg.

"We took samples of Rhine water up- and downstream from the discharge points. The river water appears to contain 10 times the [normal] amount of dioxins as a

result of discharging by the companies named. Dioxins have been connected to cancer, growth disorders, and infertility, and do not belong in the Rhine. Humans come in contact with the poison in drinking water and by eating fish," says Ruud Teunissen of the Clean Water Foundation. Clean Water advocates including dioxins in the licensing system for waste water discharging. "The authorities must establish stricter requirements with regard to the discharging of harmful substances. We want to show with this sampling that the authorities cannot both permit companies to dump these substances into the Rhine and strive for a living Rhine," says Teunissen.

Shell and Solvay questioned the measurements made in 1988, and additional research took a full one-and-one-half years. Shell undertook further measurements itself and believes that the study by Clean Water has to be more subtly interpreted. The German company Solvay calls Clean Water's figures unreliable and says it does not believe that the foundation was capable of taking samples from a discharge pipe that is located deep down on the bottom of the Rhine.

Minister Maij-Weggen alleged yesterday in Arnhem that highly desirable policy measures are lacking due to the large number of organizations that are concerned with Rhine water quality on a daily basis. She feels that the cleanup program for the Rhine should be applied to the likewise seriously polluted Meuse and Scheldt Rivers.

NORWAY

1989 Oil, Chemical Spill Figures Highest on Record

90WN0201A Oslo AFTENPOSTEN in Norwegian 6 Jul p 18

[Article by Jan Gunnar Furuly: "1989 Became Pollution's Bad Conscience"]

[Text] 1989 was a record year for the emission of oil and chemical pollutants in Norway. The State Pollution Commission (SFT) has never received as many reports of acute emissions as last year, and they are concerned over the trend.

While there were 283 reported emissions in 1987 and 375 in 1988, the figure increased to 495 in 1989. Portions of this increase were attributable to improved coastal monitoring and warning along the coast, but the SFT also indicates that ships and oil drilling platforms are now emitting far more pollutants than before. People have also become more environmentally aware as a result of increased attention concerning pollution of the environment, and are therefore more inclined to report such occurrences.

The SFT has now issued its annual report on acute pollution. The report provides an overview of registered emissions on land, coast and sea for 1989. 225 of the

emissions derive from oil installations in the North Sea, 166 from ship traffic and 104 from land-based activities.

The greatest increase in oil and chemical spills took place on isolated drilling fields in the North Sea. The number of offshore emissions almost doubled, from 128 in 1988 to 225 in 1989. The Gullfaks field stood out as the main offender, with 101 instances of pollution. Only 17 emissions were recorded there in 1989. 90 percent of the Gullfaks field emissions came from the Gullfaks A-platform.

Hordaland is the county which got the worst of it: the SFT issued 47 warnings there in 1989, as opposed to "only" 23 the previous year. Nordland experienced a clear decrease in reports. Oslo and Akershus also showed some decrease, but they remain high in comparison with 1986 and 1987. The SFT concludes that the most exposed areas along the coast continue to be the southern portions of Vestlandet and the Oslofjord, including the Telemark coast. Here it is primarily ships which account for the emissions.

Four of the spills in 1989 exceeded 50 metric tons. The most serious spill occurred when the freighter "Mercantil Marica" wrecked off Solund at the outlet of the Sognefjord on October 21st. 340 metric tons of heavy bunker oil and 60 metric tons of diesel spilled from the shipwreck over the next few days. The reported damage to marine life was little, according to the SFT. However, a number of dead waterfowl were found.

The SFT looks towards the future grimly. The records set in 1989 can be broken in 1990 if the frightening trend continues. The SFT notes that, among other factors, the standards of the tanker fleet are falling:

"Most of the ships were built before 1975, and this fact is starting to find expression in the number of accidents leading to acute pollution. The average age for other types of ships, with the exception of fishing vessels, is even higher and the standards are even worse. This is a very serious development. With two major oil clean-up actions stemming from shipwrecks fresh in its memory, the SFT looks on this development with concern," according to the report.

Official Reports Sulfur Emission Reduction Goal Achieved

90WN0201B Oslo ARBEIDERBLADET in Norwegian
11 Jun p 6

[Article by Svein Erik Bakken: "Emission Target for Sulfur Achieved"]

[Text]The effects of implemented measures and two particularly mild winters have led to the achievement of

Norway's targeted reduction in sulfur emissions three years earlier than planned.

So Chief Engineer Audun Rosland of the State Pollution Commission (SFT) informed the ARBEIDERBLADET.

"In order to ensure that no increase occurs, it will be necessary to strengthen the requirements concerning sulfur emissions. As part of this effort, we are reducing the requirement from a maximum of 2.5 percent sulfur in ship fuels to a maximum of one percent," he reports.

In order to reduce emissions of sulfur and thereby reduce the sulfuration of ground and water, the aim has been to reduce sulfur emissions by half in relation to the 1980 level, i.e., from 140,000 metric tons to 70,000.

In the last two years, sulfur emissions have actually fallen below the target level, or more precisely, to 65,000 metric tons. Two mild winters have had a twofold effect.

The demand for sulfurous fuel has been lessened, since the demand for heating has decreased. In addition, there has been an abundance of so-called "chance" power to replace heating by oil or coal, which entail sulfur emissions.

Significant

Emissions from domestic seafaring constitute a considerable part of the sulfur emissions here in Norway. To be more precise, 17 percent, while the world fleet's emissions comprise from five to ten percent of the total sulfur emissions.

Fees and duties in Norway are formulated in such a way that the higher the sulfur content, the more expensive the oil sold. General Secretary Hans Goksoyr of the Norwegian Petroleum Institute feels that consequently the sale of oil with a higher percentage of sulfur should cease and it should be replaced by oil with less than one percent sulfur.

Expensive

In addition, more than twice as much diesel is sold for fuel in Norway as heavy oil, which varies in terms of sulfur content. Diesel contains less than 0.2 percent sulfur, but also costs twice as much as oil.

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